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THE PENNSYLVANIA BUILDING AT THE CLOSE OF THE FAIR

THE STORY OF
PENNSYLVANIA

AT THE
WORLD'S FAIR
ST. LOUIS, 1904

PREPARED BY
JAMES H. LAMBERT, A. M.
Executive Officer Pennsylvania Commission

VOLUME TWO.

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NOTE TO VOLUME TWO.

WHILE the contents of this volume may not have the same popular interest as the contents of the first volume of this report they are of far greater and more lasting value. They embrace a full and graphic account of the practical work accomplished by Pennsylvania at the St. Louis Exposition—descriptions of Exhibits in the several departments—which so faithfully demonstrated the great and diversified natural resources and manufactured products of our Commonwealth as to give it a rating in the competition second only to the home State of the Fair.

Pennsylvania Exhibits in nearly every classification attracted the particular attention of visitors from abroad, and through the attendants in charge many new communications were opened and trade relations established between the producers and manufacturers of the State and purchasers in other parts of the world. To make a satisfactory display of this character costs both labor and money, but the fact that it is done at recurring Expositions, and is approved by the best business experience, is conclusive evidence of its utility.

NOTE TO VOLUME TWO.

There were displays from Pennsylvania in several departments which were beyond the possibility of competition. Among these were to be found anthracite, which was shown in a particularly effective way, and in fact the whole of the State's Mines and Metallurgy Exhibit may be justly included in this rating; the unsurpassed contribution to the utilities of the Exposition by the Pennsylvania Railroad Company; the Westinghouse installations in the three great departments of Transportation, Electricity and Machinery, through which the power for the whole Exposition was supplied; the great exhibit of the Baldwin Locomotive Works; that of the Bethlehem Steel Company; the brilliant display of the Quaker City Cut Glass Company—these and many other Pennsylvania features, were concededly without rivalry. No other State presented anything like so much that was out of the common-place.

The official catalogues of the exposition were very incomplete and in other respects inaccurate. A conscientious effort has been made to revise and correct them as to Pennsylvania Exhibitors, and the lists given in the Appendix to this volume are believed to be fairly complete. It can be readily understood that the number of titles in the catalogues does not give any real indication of the number of separate exhibits

NOTE TO VOLUME TWO.

from the State. It does not even afford basis for a fair calculation. In many instances a single exhibitor had displays covering a variety of articles in several different classifications, and it was out of the question to include all the minute details in a catalogue.

In suitable places acknowledgment is made of particularly efficient and unselfish services rendered by many of those entrusted by the Commission with important duties. With these must be included T. Stewart Pearce, cashier of the State Treasury, whose assistance was of the greatest value. It is proper, also, to express appreciation of the courtesies extended on many occasions by Governor David R. Francis, President of the St. Louis Exposition Company; by Walter B. Stevens, its Secretary; by Charles M. Reeves, Secretary of the Exposition Committee on State Exhibits; by William H. Rau, official photographer; by William H. Fox, whose knowledge of and enthusiastic interest in art proved of the greatest value, and of the intelligent work done by Miss Florence Warren, who acted as secretary to the Executive Officer for the greater part of the time the work was in progress.



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THE EXPOSITION'S MEDALS OF AWARD.

PHOTOGRAPHIC REPRODUCTIONS OF THE REVERSE SIDES.



Pennsylvania Exhibits received
74 Grand Prize Medals.



Pennsylvania Exhibits received
187 Gold Medals.



Pennsylvania Exhibits received
135 Silver Medals.



Pennsylvania Exhibits received
106 Bronze Medals.

The total number of Medals of all kinds awarded to
Pennsylvania was 502, and in addition there
were 197 Cash Prizes in the Live Stock
Department.

THE PENNSYLVANIA BUILDING.

ONE OF THE FINEST AND MOST IMPOSING OF THE MANY STATE PAVILIONS AT THE EXPOSITION—HARMONIOUS IN ALL ITS DECORATIONS AND APPOINTMENTS—ITS BEAUTIFUL LOCATION AND ATTRACTIVE SURROUNDINGS—HOSPITABLE AND ACCESSIBLE—THE LIBERTY BELL AND THE HUNDREDS OF THOUSANDS OF VISITORS—PORTRAITS OF DISTINGUISHED PENNSYLVANIANS PAST AND PRESENT—THE AMERICAN ART SOCIETY'S COLLECTION—MURAL DECORATIONS FOR THE JOHN SARTAIN PUBLIC SCHOOL—VIEWS OF ENTERPRISING PENNSYLVANIA CITIES—A MUSEUM OF PRICELESS HISTORICAL RELICS AND ART.

THE Pennsylvania State Building was the most imposing and among the more beautiful of the forty unique State pavilions which ornamented the Plateau of States. The choice of a site was rather an arbitrary matter, for the reason that all the available space on the main thoroughfare through this section of the Exposition grounds had been assigned before Pennsylvania took up the work that ultimately made her such an important factor in all the various competitions.

The location finally accepted was on Colonial Avenue, a road leading westward from Commonwealth Avenue. Next to it on the east was the Connecticut Building, an historical reproduction; nearly opposite, the unique pavilion of Rhode Island, and a little further east the

PENNSYLVANIA AT THE WORLD'S FAIR

fine building erected by Indiana, and across the Avenue from that, the Arkansas Building. It was the garden spot of Forest Park, and was not prejudiced by the fact that it was somewhat apart from the main highway of the Plateau. This site was the only one available which was large enough to permit the carrying out of the plans for the Pennsylvania State Building which the Architect had already prepared, and which had been approved by the State Commission. The location was determined early in July, 1903, Chairman Walton, Executive Officer Lambert and Architect Johnson being in St. Louis for that purpose. The contract for the construction was given a month later to Dietrich and Bowser, of Philadelphia, though this partnership was dissolved a short time thereafter and the work was carried on and completed by George C. Dietrich. The contract price of the building was \$73,000, and some modifications in the plans, necessitating additional labor increased the final cost to \$74,226.10. That amount, with \$22,497.44, for furniture, insurance, landscaping and general equipment, made the total \$96,723.54, which was \$3,276.46 less than the limit of expenditure for the building and furnishing as fixed by a resolution of the Commission.

Work under the contract was begun in September,



PHILIP H. JOHNSON
Architect of Pennsylvania Building

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and in spite of drawbacks incident to winter weather and to labor difficulties, the building was ready for occupancy on April 30, when the gates of the great Exposition were opened, and was then occupied. It was dedicated on May 2, with appropriate ceremonies—fully described elsewhere in this report—and from that time to the closing of the fair was open from nine o'clock in the morning to six o'clock in the evening every day, except Sunday, to all visitors without the least discrimination. It early acquired the distinction of being the most hospitable of all the State pavilions, and this reputation it retained throughout the seven months of the Exposition.

The design of the Building was stately and impressive. The Architect, Mr. Philip H. Johnson, of Philadelphia, worked with enthusiasm in the preparation of the plans, and had the satisfaction of producing one of the finest illustrations of the architect's skill and art seen at the Exposition. It had a length in front of two hundred and twenty-six feet and a width of one hundred and ten feet through the centre. The exterior of the Building was of classic Greek style, the structure having been composed of columns and lintels as used by the Greeks, whose system of proportions is followed to this day. The detail of the building in general was Corinthian, or

THE PENNSYLVANIA BUILDING.

third of the original orders. The main portal was emphasized by a pediment surmounted by groups of Allegorical figures, and an effigy of William Penn. The lines of all cornices were brought out in bold relief by an elaborate system of electric lighting. On either side of a spacious rotunda were wings fifty feet in width, and at the end of these, on both sides were large sweeping colonnade porches, each one hundred and twenty-nine feet in length. The main structure was crowned by a massive gilded dome of splendid proportions and on top of which was an octagonal shaped observatory, giving a magnificent view of the surrounding country. From the ground level to the base of the flag staff on the dome, the measurement was one hundred and eight feet, and from the first floor to the ceiling of the rotunda it was fifty-three feet.

As one entered the Building the most impressive feature was the finely proportioned rotunda, the roof of which was supported by a colonnade of Ionic capitated columns, which supported an entablature of great dignity, this, in turn, being surmounted by a series of twelve semi-circular arches or lunettes, in each of which was an allegorical painting suggestive and typically illustrative of the various important industries of the State, including mining, oil, manu-



THOMAS H. GARVIN
Superintendent Pennsylvania Building

THE PENNSYLVANIA BUILDING.

factures, ship-building and transportation. The useful and the fine arts, education, agriculture, and the State militia were represented in the group. Included, also, was a painting of the historic Independence Hall, and facing it from the other side of the dome was the State coat of arms.

The principal color scheme of the architectural features was a rich, soft, ivory-white, with the capitals and plinths of columns gilt, as also the vaulted soffits above the painting, and the large guilloche mouldings on the ribs of the ceilings, as well as of the other important detail. The walls above the low wainscoting were painted in a rich shade of turquoise blue, with paneled ornamental stenciled work of a very rich ecru tone. The ceiling was finished in a rich yellowish tint of a tone to harmonize with the general surroundings; the general effect produced, aside from the artistic result, having been Pennsylvania's State colors.

The large rooms on the first floor to the right and the left of the main entrance were decorated in refined colorings. That on the right—the women's reception room—was finished throughout in a shade of harmonious green, the window draperies being of green plush with heavy gold braided trimmings, while at the entrances were handsomely executed portieres

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emblazoned with the State coat of arms. This room contained some beautiful furniture, harmonious in design with the architectural features that pervaded the apartment, and consisted of some large settees, tables, writing desks and richly upholstered easy chairs. Adjoining was a room also finished and furnished in green, especially provided as a retiring room for women. Across the hall were the women's toilet rooms, with hot and cold water and every convenience of a perfectly equipped lavatory. A trained parlor maid was always in attendance to care for the wants of women visitors.

The men's reception room across the large stair-hall, at the left, was similarly treated as regarded furniture and draperies, but naturally in a more masculine taste. The color scheme here was a deep Venetian red, with settees, easy chairs and writing tables in abundance. In the centre of this room was a long mahogany table upon which visitors daily found the leading newspapers of Pennsylvania. Provision for the comfort and enjoyment of the men was made in a complete smoking parlor at the west end of the reception room, finished in red, and containing mahogany furniture. Tables, easy chairs and lounges, with the accessories of the ideal smoking room were here, and the degree of pleasure the place afforded was

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evidenced by the genial groups of visitors always to be seen in this popular rendezvous. The men's toilet rooms adjoined these quarters, where there was every possible convenience, and an attendant always present.

In the men's reception room and the smoking room were displayed eighty-nine large photographs of the monuments erected to Pennsylvania regiments on the battlefield of Gettysburg and others on the field of Antietam. Here and in the rotunda were also seen enlarged photographs illustrating the progress, improvements and characteristics of many of the cities of the State.

On the first floor back of the rotunda was an office where letters could be mailed to any part of the world, or received, postage stamps purchased, stationery bearing a handsome engraving of the Building procured without cost, and information obtained relative to the Exposition and its points of interest. Here likewise was a package room where polite and prompt attendants administered to the wants of those seeking the temporary relief of parcels and other impedimenta. On the colonnade porches at each end of the Building were large comfortable benches and rocker-chairs, inviting resting places where pleasant breezes were nearly always found even on the warmest days at the Fair.

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On the second floor were three large and well designed Art rooms, upon the walls of which were dis-



MRS. THOS. H. GARVIN

played many works of art, both in oil and water colors, from the collection of the American Art Society, of Philadelphia, of which Harrington Fitzgerald is President. Other pictures from this collection were also found in other parts of the Building. In the central art room was exhibited what is perhaps the most curious and interesting collection of rare coins in the

world. Hundreds of coins of every age and of inestimable value have been riveted together in the form of a vase. They represent the money tokens of the nations of the whole earth. The collection is the property of Edward Rausch, of Philadelphia, who collected the coins and executed the idea of their formation into the vase which he values at seventy-five thousand dollars.



Miss Harriet Alexander

On the second floor of the right wing was a writing room for women, semi-private quarters as distinguished

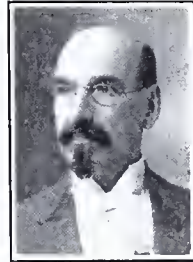
THE PENNSYLVANIA BUILDING.

from the more public reception rooms below, though freely accessible to all visitors and never closed at any hour when the Building itself was open to the public. It was finished in a pleasing shade of turquoise blue, furniture, draperies and decorations blending so faultlessly as to satisfy an artistic taste the most exacting. A large, comfortable reading and magazine room adjoined, where were filed newspapers from all parts of the State, official State reports and reference books were at hand, and every accommodation provided for newspaper correspondents.

The Commissioners' room occupied the eastern end on the second floor of the right wing of the Building. It was a commodious and well arranged room, having windows on three sides and nearly always able to catch a wandering breeze from some quarter. The furniture was characterized by a harmony of deep thrush brown, every article in the room, rugs, furniture and draperies contributing to an effect intensely agreeable to



THOS. H. GARVIN, JR.



E. E. BRILHART



C. W. BEESE



SAMUEL MC DOWELL

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the eye. On the walls were portraits or photographs of leading citizens of the State, officials and others, including an excellent painting in oil of Governor Pennypacker. In this room the Superintendent of the Building had his office, and from these quarters its administration was directed. The complete executive staff of the Building consisted of: Thomas H. Garvin, Superintendent; Mrs. Thomas H. Garvin, Hostess; Miss Harriet Alexander, Matron; E. E. Brilhart, Registration Clerk; C. W. Beese, Postmaster; Samuel McDowell, Assistant Postmaster; Thomas H. Garvin, Jr., clerk and typewriter; Isaac Mitchell, Messenger.

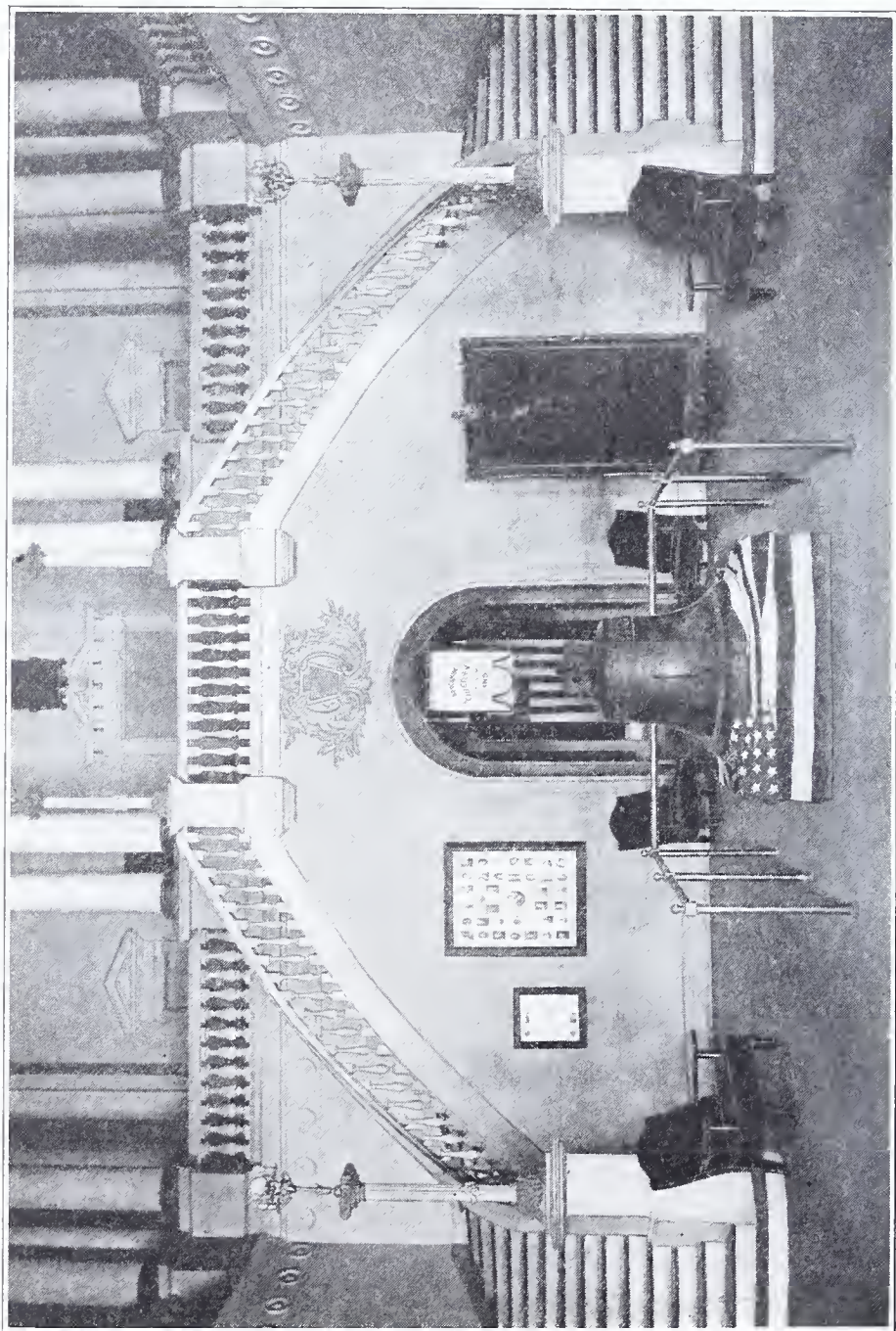
No State Building erected by Pennsylvania at any Exposition was ever managed with more care in the expenditure, or with greater purpose to keep it free from criticism on any grounds whatsoever, than the Pennsylvania Building at the St. Louis Exposition. The Superintendent has been justly complimented in the concluding report of the Executive Officer. All of the assistants deserve a share of credit, for all displayed a loyalty and fidelity which were necessary to a successful administration. There was but one complaint throughout the whole seven months the Building was open. This complaint was comparatively insignificant, even had it been well based, but

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it was immediately investigated and proved to have arisen from a misapprehension. The repetition of anything of the kind was made impossible.

Everything at all times was conducted in the most orderly manner, and though many thousands of people, attracted chiefly by the Liberty Bell, passed through the rotunda and other parts of the pavilion, nearly every day, there was never the least confusion. It was a resting place for women and children wearied after traversing the magnificent distances of the Exposition grounds, and all were made to feel at home and were afforded every convenience for rest. The grounds about the Building on every side had been skilfully and most beautifully transformed into a veritable garden, with flower beds, grassy terraces and picturesque walks, while great varieties of shrubbery adorned the graceful lawns in a profusion of nature's own tints. On all sides stood stalwart forest oaks of native growth, whose verdure in the summer months of the Exposition was such that it completely shaded the many windows, forming a beautiful canopy of gently swaying boughs, which afforded a refreshing relief in a climate not too temperate at that season.

On the walls of the rotunda and on those extending around the upper corridors, portraits chronologically representing the several periods of Pennsylvania's history



IN THE ROTUNDA PENNSYLVANIA BUILDING

THE PENNSYLVANIA BUILDING.

and the State's general activities in all lines of effort were placed and attracted the greatest attention. They constituted an illumination of the Commonwealth's intellectual vigor at all periods since the beginning. The collection was prepared by Albert Rosenthal, a well known and thoroughly competent artist of Philadelphia, and arranged on the walls under his personal supervision. It was necessarily incomplete, and possibly subject to criticism on that account, yet it practically covered the object for which it was developed, as far as the time left before the opening of the Exposition permitted. Pennsylvania signally favored in its founder, guided by rational and unusually liberal laws for the times, and with Philadelphia becoming the chief city of the continent and the capital of the country, attracted men of ability and force from every part of America and Europe. They became so identified with the history of the Commonwealth that in selecting a number of Pennsylvanians for special distinction and honor, it is impossible to confine the list to those of Pennsylvania birth.

In the lower hall, facing the entrance, as though welcoming the visitor, was a whole-length portrait of the Founder of the State of Pennsylvania. A young, vigorous man, in full armor. This portrait was developed from the only authentic portrait from life, painted

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at the age of twenty-two; the original, a bust picture, is now in the possession of the Earl of Ranfurly, the present representative of the Penn family in England. Considering William Penn's eventful entrance into the Society of Friends, it is curious that the only portrait we could rely upon represents him in such martial array. William Penn's position and wealth would justify the belief that there were other portraits taken later in life and there do exist portraits supposed to be Penn; one known to have been developed from a wooden bust by Sylvanus Bevens, and one recently discovered, painted by Richardson, but there is no pedigree to the picture to identify it absolutely. The so-called portrait of Penn is more likely to be that of his father the Admiral. The figure and accessories of this whole-length portrait are the fancy of the artist, based upon a suit of armor of the time. A copy of the bust picture is owned by the historical Society of Pennsylvania.

Benjamin Franklin is so completely a part of Pennsylvania's history, both locally and nationally, that his portrait was properly placed in a conspicuous position. Possessed of a vivid and practical imagination, rare good sense and infinite patience and tact, the patriot cause gained by his support, and his adopted State and City still show institutions originated and



WOMEN'S RECEPTION ROOM, PENNSYLVANIA BUILDING.

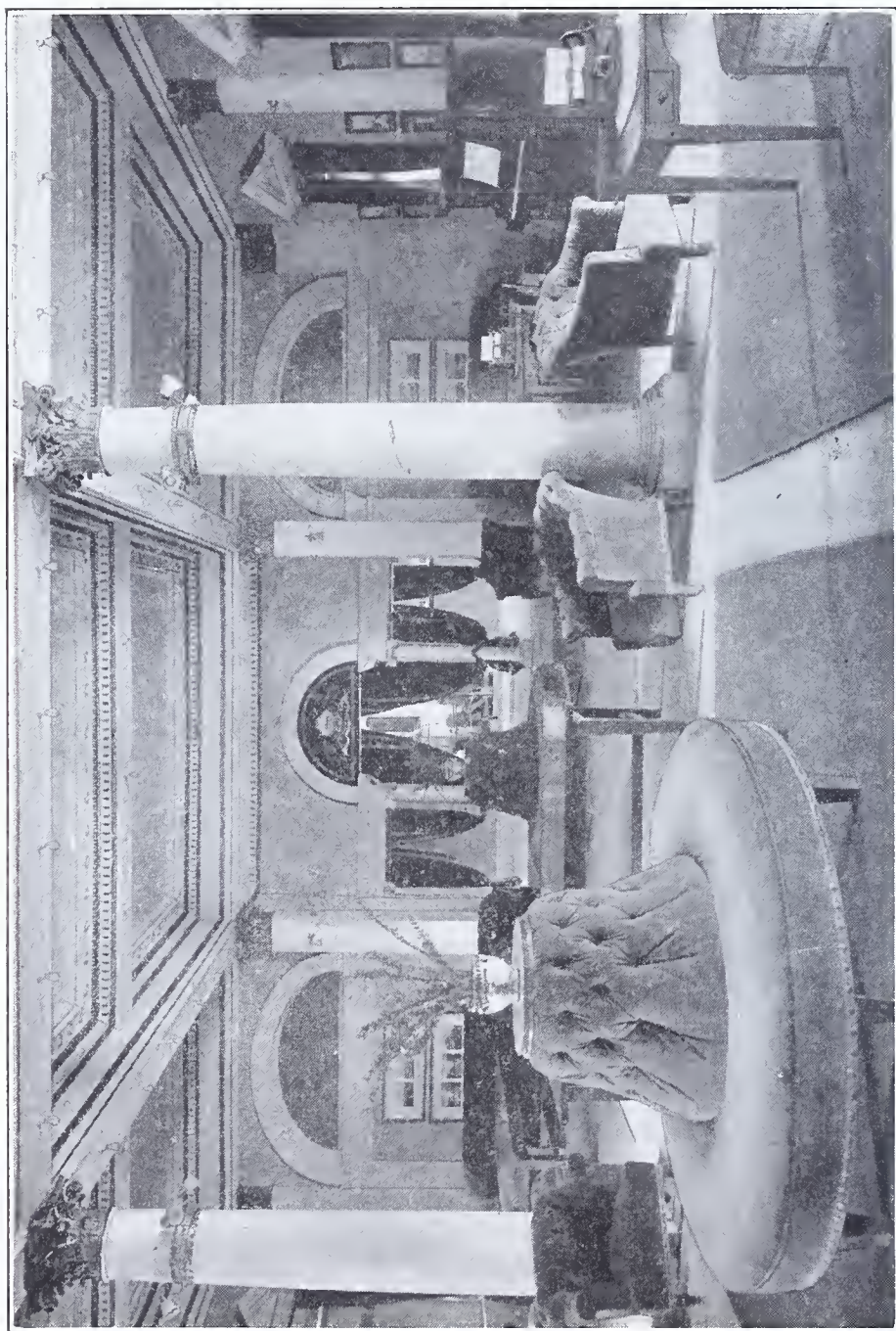
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founded by him, unique in their day, the basis of similar ones now scattered over the country. As philosopher and scientist, he was universally acknowledged and honored. The portrait is a copy from the quaint picture by the Philadelphia artist Charles Willson Peale, owned by the Historical Society of Pennsylvania. It represents Franklin in his eighty-fourth year, with the suggestion of lightning in the background. The portrait gives the beholder the impression of a philosopher and scientist, rather than a man of public affairs. The portrait of Robert Morris was well placed as a pendant to Franklin. Morris was no less important in his work as a financier of the Revolution than others whose names are more familiar to the present generation. The portrait is made up from the head painted from life by Gilbert Stuart and owned by the family, and the accessories from authentic material. The portrait of Thomas Mifflin, first Governor of Pennsylvania under the Constitution of 1790, the original of which is owned by A. J. Dallas Dixon, of Philadelphia, was a notable one, displaying the strong characteristics of the sturdy patriot it pictured.

Among those who gained distinction as jurists, though at the same time achieving undying fame as patriots, many of them signers of the Declaration of

THE PENNSYLVANIA BUILDING.

Independence, whose portraits were in the collection, were: Francis Hopkinson, one of the most versatile men of his day, esteemed in his time as the first man of letters in Pennsylvania, the original of whose portrait is by Robert Edge Pine; Thomas McKean, Chief Justice of Pennsylvania and Governor, the original painting of whom is owned by the family of the late Admiral McKean and is in Ashville, North Carolina; James Wilson, first law professor of the University of Pennsylvania and a Justice of the Supreme Court of the United States, one of the strongest minds in the formation of the Federal Government, whose original portrait is a miniature owned by Thomas H. Montgomery, of Philadelphia; Jasper Yeates, an active leader in the Revolution and a Judge of the Supreme Court of this State, often described as the Father of Law in Pennsylvania, the original portrait being a miniature owned by Jasper Yeates Brinton, of Philadelphia; Edward Shippen, a native of Philadelphia, a Judge of Vice-Admiralty at the early age of twenty-three, and later Chief Justice of the Supreme Court of Pennsylvania, from which position he retired at the age of seventy-six, whose original portrait is by Gilbert Stuart and is now in the Corcoran Art Gallery in Washington; George Ross, a learned lawyer, Judge, and signer of the Declaration of Independence, whose original portrait



MEN'S RECEPTION ROOM, PENNSYLVANIA BUILDING.

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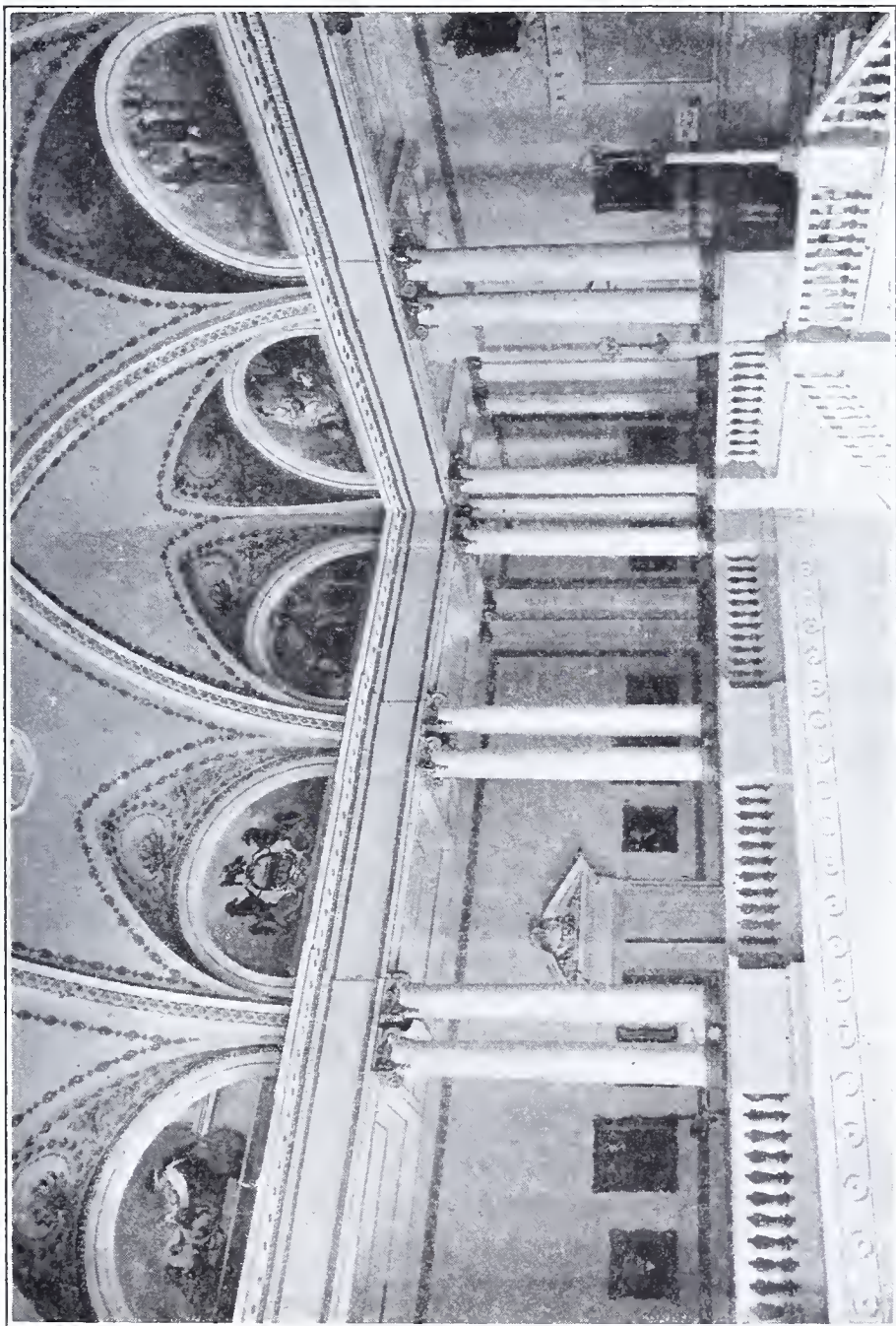
is by Benjamin West and is owned by Ross Eshleman, of Lancaster; William Tilghman, one of the ablest of the Chief Justices of Pennsylvania; George Bryan, an Irishman who became wholly identified with Pennsylvania, was its Chief Executive in 1778, and author of the First Abolition Act in America. Among those of later date who gained distinction in Judicial service were portraits of John Bannister Gibson, one of the greatest of the Chief Justices of Pennsylvania, and the last to occupy that position under the Constitution of 1790 before the Judiciary was made elective; and George Sharswood, whose service on the bench extended over forty years, ending as Chief Justice, and whose portrait in this collection was made from a contemporary photograph from life.

First among the portraits of Pennsylvanians distinguished in war was naturally that of Anthony Wayne, whose exploits in the Revolutionary War and subsequently in the Indian Wars give him a place as one of the first soldiers of his day; the original painting is by Charles Willson Peale and is in the Wayne homestead at Paoli. Accompanying were portraits of Jacob Brown, who won distinction in the War of 1812 in command of the Army at Niagara and became General-in-Chief of the Army of the United States a few years later, the original by Jarvis; and by portraits of mili-

PENNSYLVANIA AT THE WORLDS FAIR.

tary heroes representing a later period, including General John Fulton Reynolds, whose brilliant career was brought to an untimely end in the first day's fight at Gettysburg, and whose portrait in this collection is from a contemporary photograph; of General George Gordon Meade, whose victory at Gettysburg was the decisive blow to the Southern Confederacy, the head of the picture in this group being made up from a photograph taken about 1864 and the figure and background the fancy of the Artist; General Winfield Scott Hancock another of the recognized heroes of Gettysburg, whose portrait is painted from a photograph taken from life, the figure and surroundings being the fancy of the Artist. Representing the Naval heroes of the State was a portrait of John Barry, the father of the American Navy, from the original painting by Gilbert Stuart; also that of Charles Stewart, whose services to his country covered a period of seventy-one years, and who was active in commission in all the various naval conflicts during his time, and uniformly successful in all his engagements, the original portrait being by J. P. Merrill.

Most notable as illustrating the intellectual strength of the State was a group of portraits of Artists, Scientists, Inventors, Philanthropists and men of force in the building up of the business life of the Common-



UNDER THE DOME, PENNSYLVANIA BUILDING.

PENNSYLVANIA AT THE WORLD'S FAIR.

wealth. These included portraits of Benjamin West, the Artist, from the original of the portrait painted by Gilbert Stuart; of David Rittenhouse, the first astronomer in America, a portrait from the original painting by Charles Willson Peale, now owned by Henry Hart, of Philadelphia; of Bishop William White, the first Episcopal Bishop in this country, from the original painting by Gilbert Stuart, now in possession of the family; of Robert Fulton, an artist and inventor, from the original painting by Benjamin West; of Benjamin Rush, a distinguished surgeon and patriot, from an original pastel by John Sharples, now in Independence Hall; of Stephen Girard, merchant, financier and philanthropist, from the original portrait by Thomas Sully; of Bayard Taylor, traveler, author, poet and diplomat, whose portrait in this collection was made from a photograph; of Elisha Kent Kane, surgeon, who gained distinction in Arctic exploration, the portrait being painted from a contemporary picture; of Thomas Alexander Scott, representative of the superior position Pennsylvania holds in the railroad world, the portrait having been painted from a photograph from life; of Mathias William Baldwin, inventor and locomotive builder, the portrait having been made from a photograph; of Joseph Leidy, distinguished as a naturalist, anat-

THE PENNSYLVANIA BUILDING.

omist and biologist, whose portrait was made from a photograph.

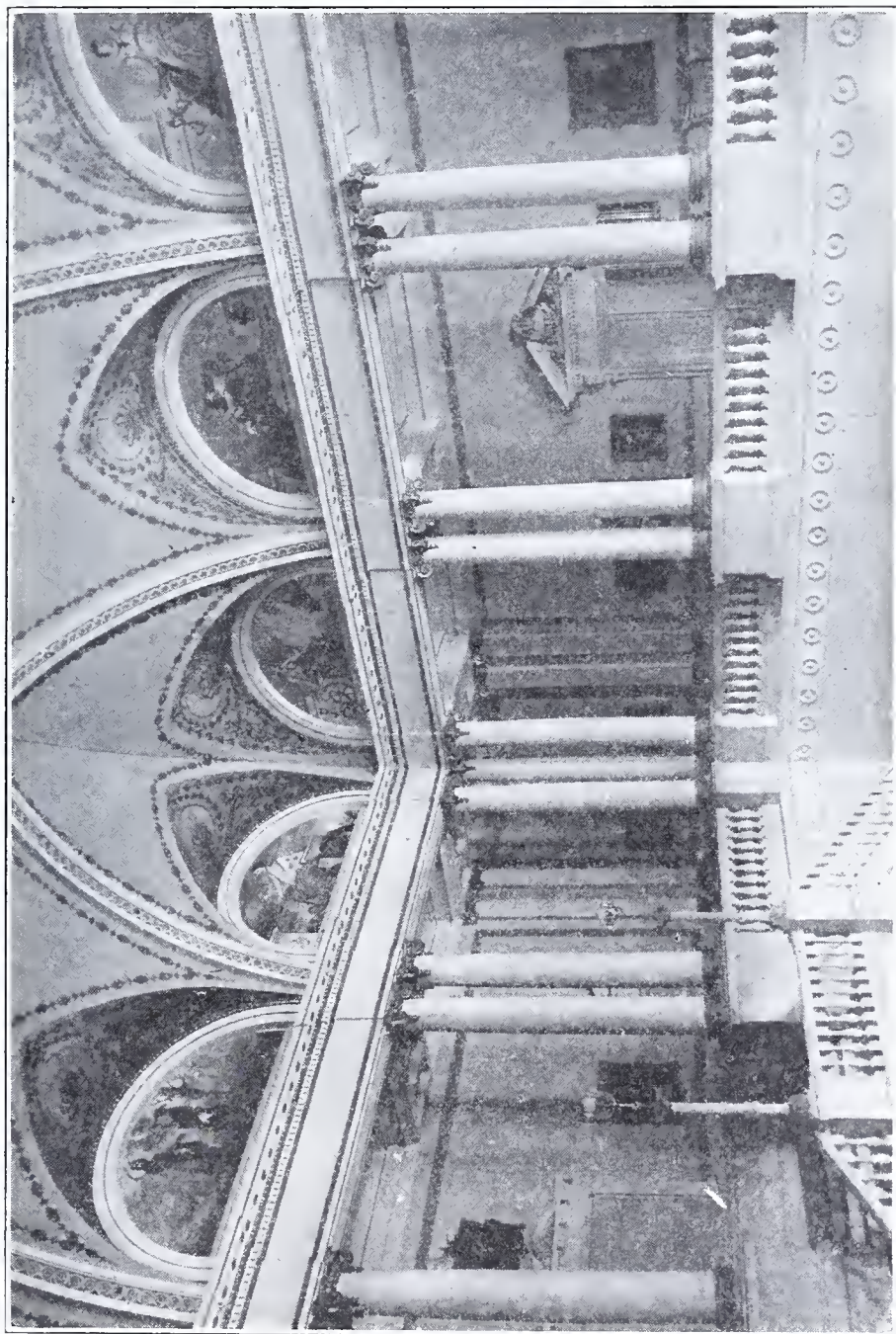
Naturally included in the collection were portraits of Washington and the Marquis de LaFayette, both of whom rendered their more distinguished services to this country on the soil of Pennsylvania. The painting of Washington was made from the original by Gilbert Stuart, known as the Athenaeum portrait, now in the Boston Museum, and the painting of LaFayette was after the original by Charles Willson Peale, in Independence Hall, and interesting in showing him as he appeared in the uniform of the Continental Army.

Among the portraits of men who were later distinguished in the affairs of the State—the most of them well known to the present generation and some of them contemporary—appeared that of Simon Cameron, a painting from a photograph taken about 1865; of James Buchanan, the original from a photograph made during his term in the presidency; of Thaddeus Stevens, the great Commoner, the portrait from a contemporary photograph; of Andrew Gregg Curtin, the distinguished war Governor and soldiers' friend, painted from a photograph made in 1865, when he was serving his second term as chief Executive of the Commonwealth; of Matthew Stanley Quay, United

PENNSYLVANIA AT THE WORLD'S FAIR

States Senator and great party leader, painted from personal recollections and observations of the Artist; of Samuel Whitaker Pennypacker, present Governor of the Commonwealth, painted from life at the Governor's home, Pennypacker's Mills, in 1903; of Boies Penrose, United States Senator, and party leader, painted from life at Philadelphia, in 1904; of Philander Chase Knox, United States Senator, formerly Attorney-General of the United States, painted from life at Washington, in 1904; of James Tyndale Mitchell, Chief Justice of the Supreme Court of Pennsylvania, painted from life, at Philadelphia, in 1904; and of William M. Brown, present Lieutenant-Governor, painted from life, at Philadelphia, in 1904.

Among the most interesting and beautiful of the pictures that adorned the Pennsylvania Building, occupying nearly all the space in the larger Art gallery, were four large mural paintings, all of them nine feet high and ranging from six feet to fourteen feet in width, which were painted expressly for the John Sartain Public School of Philadelphia, by students of the Philadelphia School of Design for Women. These important canvases form part of a series of decorations, rich in invention and splendid in execution, which will mark a new era in educational environment. Planned by the Principal of this efficient professional



ABOVE THE ROTUNDA PENNSYLVANIA BUILDING.

PENNSYLVANIA AT THE WORLD'S FAIR.

school for women, Miss Emily Sartain, they will render unique in beauty the building through whose name the memory of her distinguished father is honored by the Board of Public Education of the City of Philadelphia. Literally unique, since it is thus far the only municipal school enriched by mural paintings specially designed and executed to fit into the architectural construction. Even Paris which commissioned great masters to decorate its Law School of the Sorbonne, and its School of Pharmacy, has not as yet thus beautified any municipal school.

These four paintings illustrate the appropriate theme running throughout the corridor of the lower floor: the early age of the various phases of knowledge. The largest panel in the exhibit, fourteen feet wide, is "The Early Age of Music" by Miss Nancy M. Ferguson, who by this work won a Fellowship carrying with it the privilege of a year of study in Europe. It is a charming composition, full of sunlight and gayety, of joyous movement and color. The canvas is divided into two great masses of light and shade. In the foreground groups of maidens disport themselves, filling the air with song and the soft music of pipes. A slender, shepherd-clad youth stands at ease in the shade of the great trees, while overhead and in gentle flight a winged figure appears, symbolizing the zephyrs

THE PENNSYLVANIA BUILDING.

and balmy airs of quietly stirring leaves. In the middle distance a young Pan pipes his lay. The setting is wholly pastoral and the time the ripe period when the full springtide merges into summer. The motto inscribed on its border embodies the sentiment of its legendary theme:

How sylvan sweet the pipes of Pan,
When on his reedy flute
Blew all the notes of wood and field,
Till list'ning, lo! for maid and man
Was Music born and Harmony revealed.

Elizabeth L. Burton, illustrating Diplomacy, has given, on a canvas thirteen feet long, a vigorous rendering of a Homeric legend, the dramatic features of the story being accented by a forceful and tumultuous arrangement of light and dark. The inscription runs thus: "Ulysses, loth to vex King Menelaus by refusing aid in the siege of Troy, feigned madness. With ox and ass he plowed the sands, till Palamedes dragged Telemachus his son before the yoked team; when right soon Ulysses swerved aside, and showed himself a diplomat, not mad but sane." The centre of this work is, of course, fully taken by the dramatic figure of Ulysses and the misyoked team of ox and ass. These figures move against a gray and wind-blown sky,—dark and ominous. The sea breaks in long green

PENNSYLVANIA AT THE WORLD'S FAIR.

waves across the near foreground. A group of observers, with the boy Telemachus, approach at the right. The classic period is sufficiently suggested in the landscape.

Alice Mumford has pictured for us delightfully her theme of Metallurgy. In a deep mountain gorge, amid his helpers and a crowd of approaching warriors stands

“A Titan forging from the metalled earth

The conquering sword, the lean, long-furrowed plow.”

The lines in the quotation amply express the purport of this scene. The muscled figure at the forge, the forge and anvil, the heated metal are all in place. The warrior on his horse, who pauses for a moment, perhaps, to give an order, makes a bold mass against the cliff beyond, which is part of the vast canon where the scene is laid, suggestive of the “deep delved earth” whose treasures of gold and silver, iron and copper men ever search for and win.

Kathryn Schmidt has depicted the “Early Age of Astronomy,” when “the wisdom of the observers was disseminated by Religion and the Sciences.” In style this canvas is distinctly classic, following the spirit of the early masters in its composition. We see parts of a great architecture, with stair and arched balcony, the observatory of those great and primitive



THE EARLY AGE OF MUSIC.—NANCY M. FERGUSON

PENNSYLVANIA AT THE WORLD'S FAIR.

minds who read, or essayed to read, the truths of God and the law for men in the splendor of the sky. At the base of the stair rest in various attitudes those philosophers, seers, and wise mathematicians who test the verity of the observer by the law of figures which may not lie. The constant moon lights the scene, the darkly shadowed cypress makes more mysterious the deep places of the night, and one's mind, in the ascending lines of the composition, is lifted to those infinite star-spaces where the wisdom of the ancients and the wisdom of to-day still find the majesty of Him who measures the Heavens with a span.

This panel, the last to be mentioned, was the first to be completed, and the world is fortunate in possessing it. It is the sole adequate, enduring record of the unusual and distinguished creative talent of the young artist, whose recent untimely death, at the opening of a most promising career, is a loss to the entire artistic community. Rarely have lucid intelligence and ardent artistic temperament been more closely allied with a capacity for hard work and strenuous application. The productiveness in art of her short twenty-three years of life gave promise of a most brilliant future had her life and strength been spared. It is of interest to mention that, with the exception of Miss Mumford, these artists are the product of our

THE PENNSYLVANIA BUILDING.

public school system, even in their artistic development. They received their professional training in the School of Design as incumbents of scholarships awarded by the Board of Public Education of the City of Philadelphia.

This exhibit will make an indisputable authoritative record for all time of the fact that Philadelphia is the first city in the United States to adorn a public school with mural paintings in the proper and accepted sense,—paintings expressing appropriate themes, designed and executed purposely to fill certain architectural spaces provided in the construction of the building.

In order that the display in the State Building might be as significant as possible of Pennsylvania, it was undertaken to secure from each of the cities and leading boroughs of the Commonwealth photographs illustrating the character, enterprise and improvements of these several municipalities. The Mayors and Chief Burgesses were directly appealed to, the design being to procure at least two pictures from each place, to be hung conspicuously on the walls of the State pavilion where they would be seen and studied by thousands of people from every quarter of the land. The real significance of the suggestion was at once appreciated by the officials of a number of the cities and boroughs, and prompt and generous action

PENNSYLVANIA AT THE WORLD'S FAIR,

taken by them, though the response was not as general as desired.

There were, however, from Reading views of Penn Street, reservoir grounds and city park; from West Chester two views, one of 1844 and another of 1904, showing the court house in each year; from Chester views showing the filtration plant, the new High School, the John Morton Monument, scene at a launch at Roach's shipyards, and the Tidewater Steel Works; from Wilkes-Barre two views, showing the city and west side of the public square; from Scranton, two bird's eye views from the Mears building illustrating most of the distinctive features of the prosperous city; from Williamsport a view of the fine City Hall; from Shamokin an excellent photograph showing a coal breaker within the city limits; from McKeesport two general views showing New Olympia Park, the First Presbyterian Church, Walnut Street, with the residence of J. K. Shelly, and the National Tube Company's works; from Meadville views showing Diamond Park, Allegheny College where the late President William McKinley was a student; also two pictures of the original Drake oil works of Titusville photographed in August 1861, with a reproduction from a tintype taken in 1864 and a photograph of the monument erected in memory of the late Colonel Drake in Wood-

THE PENNSYLVANIA BUILDING.

lawn Cemetery; from Allentown four pictures showing twelve different views of the city, streets and public works; from Lancaster two pictures embracing thirty different views of the streets, private residences, old and new City Hall, and public works.

These views were in all respects most creditable to the municipalities which supplied them. They occupied prominent places on the walls of the first floor of the Building, and attracted, as they deserved, the attention of thousands of visitors from other states and countries who were enabled to get from them a clear evidence of the substantial character, thriftiness and beauty of Pennsylvania cities. To have been represented in this interesting collection was an honor and a benefit, displaying as such representation did the public spirit of the municipal authorities and their proper desire to appropriately exploit the cities, the administration of whose affairs had been entrusted to them. Though including a lesser number of cities than could have been desired, there were sufficient views to make complete and significant the illustration of Pennsylvania characteristics.

In the early weeks of the Exposition ten thousand copies of a souvenir book, issued with the official authority of the Commission, were distributed to visitors at the State Building. This little book contained a



COMMISSIONERS' ROOM, PENNSYLVANIA BUILDING.

THE PENNSYLVANIA BUILDING.

series of articles descriptive of the resources of Pennsylvania, its progressive methods in the several departments of Government, and of individual enterprises. The articles were written by those who, by reason of an official position, and experience, were best qualified for the task. The Commonwealth's revenue system was explained and reviewed in an exceedingly informing paper by Auditor General Hardenbergh. The common schools of the State were fully written about by Dr. N. C. Schaeffer, Superintendent of Public Instruction. The mines and mining interests by Frank Hall, of the Department of Mines, a recognized authority on that subject. Secretary of Internal Affairs Brown gave the facts concerning the great railroad enterprises of the Commonwealth, and the agricultural interests of the State, with the statistics of production and possibilities of the soil in different divisions were fully set forth in a paper by Secretary of Agriculture Critchfield. The banking system and the method of State examination were explained by Deputy Commissioner of Banking Morrison; the fish industry and fish cultural work by Fish Commissioner Meehan; public health organization, methods for preventing and suppressing epidemics, municipal health and State quarantine, by Benjamin Lee, Secretary of the State Board of Health. These

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were followed by articles on Philadelphia and its industries, and others covering various enterprises in other sections of the Commonwealth, making all together a significant and impressive presentation of the resources of the greatest among the States of the Union.

The clerk in charge of the registry books and whose duty it was to make an enumeration of visitors to the State Building, whether registered or not, reports that the total number of visitors during the Fair was 1,080,456. The number registered does not convey an adequate idea of the actual number of persons who passed through the Building in the course of a day, it having been ascertained that while the greater per cent. of the callers were not from Pennsylvania, only Pennsylvanians in general took the trouble to register, and not by any means all of those. The registrations were as follows: For May, 1,206; June, 9,162; July, 11,559; August, 13,590; September, 16,886; October, 14,841; November, 7,778; making a total of 75,023. There were special days on which the attendance was enormous; as for instance, on the Fourth of July, when it numbered 25,400, and Pennsylvania Day, when it reached 35,000; Labor Day, 27,200; St. Louis Day, 30,900.

It was the practice to make an actual count of those who entered the Building for a period of ten minutes

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at intervals of one hour during the entire day, and the result of this enumeration is certainly to be regarded as nearly accurate as any that could have been reasonably made. There were days when it was necessary owing to the immense crowds, to close the visitors' register, as it was impossible to find room to enable people to enter their names.

The most unusual and by no means the least interesting event in the brief history of the Pennsylvania Building occurred on the day before the Fourth of July. On that day some forty or fifty Igorots from the Philippine Village, in the scanty attire that distinguished them throughout their stay at the Exposition, visited the State Building, where they received a cordial welcome and were hospitably entertained. While there, Antaero, the brightest of the Igorot youths, and one who spoke English, standing close beside the Liberty Bell, in the rotunda, sang "The Star Spangled Banner" with a spirit and earnestness that enthused all present, everybody heartily uniting in the chorus. It was a scene never to be forgotten.



THE EARLY AGES OF ASTRONOMY.—KATHRYN SCHMIDT.



OFFICE OF THE PRESIDENT

January 16, 1905.

My Dear Mr. Lambert:-

The picture sent by yourself on behalf of the Pennsylvania Commission has been received and I thank you sincerely for it. It will be a very acceptable addition to our collection.

Permit me to again refer to the high esteem in which the Exposition Management holds the participation of Pennsylvania at the Universal Exposition of 1904. Her Commission deserves the fullest praise for the excellent work which they performed. Pennsylvania's building was one of the largest, most attractive and most popular in the Plateau of States. It must have been visited by many thousands of people, not only from Pennsylvania but from every section of the country and many foreign countries as well. I feel sure that no one could have made a stronger or more fitting display of the great resources and industrial, agricultural and commercial development of Pennsylvania, than the Commission to whom that duty was entrusted. Again please accept my congratulations for yourself and be kind enough to transmit them to the other members of the Commission who, with yourself, are responsible for the high degree of success achieved.

Yours truly,

W. H. Taft
President.

Mr. James H. Lambert,
Philadelphia.

EXHIBITS OF PENNSYLVANIA ART.

BROAD CHARACTER OF THE COMPETITION AS COMPARED WITH PREVIOUS EXPOSITIONS—INTRODUCTION OF APPLIED ARTS FOR THE FIRST TIME—PENNSYLVANIA REPRESENTED IN ALL ITS GROUPS—RECOGNITION OF HIGH STANDING OF THE STATE IN THE SELECTIONS FOR COMMITTEES AND IN THE ART ORGANIZATION OF THE EXPOSITION—SECOND ONLY TO NEW YORK IN ITS EXHIBITED WORKS—THE PICTURES OF LOCAL ARTISTS AND THE LOAN COLLECTIONS OF PENNSYLVANIANS AMONG THE MOST VALUABLE IN THE ART GALLERIES—GRATIFYING NUMBER OF PRIZES AWARDED IN THE DIFFERENT CLASSIFICATIONS.

IT was particularly sought by the State Commission to make the representation of Pennsylvania Art at the Exposition as complete and comprehensive as possible. Every protection was provided in the substantial structure erected to house the works of American artists. It was the central building of the group of three galleries directly in the rear of Festival Hall and the Colonnade of States, and standing on an elevation ninety feet above the level of the grounds. It was constructed for permanence, of gray limestone and brick, and remains as a lasting memorial of the Exposition and an Art Museum for the City of St. Louis. In composition it is a tall nave, fronted by a Corinthian portico, above which appears the large lunette which, repeated elsewhere, gives abundant

PENNSYLVANIA AT THE WORLD'S FAIR.

light to the interior. On each side of the main entrance are seated figures, one by Daniel Chester French, representing Sculpture, the other by Louis Saint Gaudens, representing Painting. Above the portico are six figures symbolizing the six great periods of Art. Two bronze griffins are effectively used as ornamentation on either end of the main pediment at its base. Near each end of the front in niches are seated figures, one representing Truth, the other Nature. These are all by artists of distinction. In the frieze of this building are medallions of stone containing portraits of the great Architects, Painters and Sculptors, while the intermediate figures surrounding the base of the Building are replicas from the antique. Such a structure, built most substantially and graced with such artistic decoration, was an inspiration in itself and appealed to the enthusiasm of Art workers.

The opportunity afforded was unusual. The Art Department in its organization had introduced a striking innovation by expanding the classification to include what is familiarly understood as industrial art, obliterating the line which at all Expositions heretofore had been drawn between the Fine Arts and other original products of art workmanship. Under the broader classification, as declared by Prof. Halsey C. Ives, Chief of the Department, any Art work,



CORNER OF A GALLERY, DEPARTMENT OF FINE ARTS.

PENNSYLVANIA AT THE WORLD'S FAIR.

whether on canvas, in marble, plaster, wood, metal, glass, porcelain, textile or other material was recognized as equally deserving of respect, in proportion to its worthiness from the standpoint of inspiration and technique.

To carry out this plan a special group under the designation of Applied Arts was added, with ample galleries arranged for a proper display. It was an attractive idea, and gave art craftsmen, for the first time in the history of International Expositions in this country, the advantages of a broad classification which included all forms of artistic representation in which individual artists, or groups of artists working co-operatively, have expressed their thoughts in whatever medium they chose to select. This was all the more appropriate as well as practical, for the reason that in the past few years—notably since the Columbian Exposition—there has been a marked development of activity and interest in the handicrafts and the instinctive impulse for expression in various forms of art work has already become a very important part of our national development.

There was no collective exhibit of art from the State of Pennsylvania. There could not be, under the arrangement for the displays. The works of American artists, whether from Pennsylvania or another State,

EXHIBITS OF PENNSYLVANIA ART.

were exhibited in the central Art Palace devoted entirely to the United States, and arranged according to their proper classification and grouping. So much greater were the applications for space than the possible accommodations, that consideration of quality had to take precedence over those of quantity, which was distinctly to the advantage of the exhibit as a whole. In the American galleries there was a contemporaneous division, which included works produced since the opening of the Chicago Exposition eleven years previously, and all works in that division were in competition for awards which were made by an international jury. There was also a retrospective division covering works produced within the one hundred years following the purchase of the Louisiana Territory, and a third division devoted to loans from American collections, public and private. In this last division were exhibited many of the masterpieces owned in this country. The contemporaneous section exhibited in the best possible manner the various schools of art-expression in different portions of the world, showing the best obtainable examples in the direction of the highest achievements. Visitors were thereby enabled to gain a clear and definite idea of the dominant characteristics and the scope of the different schools of art at the present time.

PENNSYLVANIA AT THE WORLD'S FAIR.

In a competition of such breadth it was obviously necessary for Pennsylvania to present the best it had and in a manner worthy the State which possessed the oldest art institute in the country, and which gave



THE HEWER—BARNARD

to the world Benjamin West, Sulley, Nagel, Rothermel, Abbey and Barnard. It could not have been otherwise without failure to understand the ethical influence of Art as a factor in the character and advancement of the Commonwealth. After conference with Professor Ives, Chief of the Department of Art, and William Henry Fox, who represented Pennsylvania in the Art Organization of the Exposition,

and to whom no small credit is due for the prominent part taken by this State in the Art display, the Executive Officer of the Pennsylvania Commission recommended the allotment of a definite amount of money to defray the necessary expenses of collecting, trans-

EXHIBITS OF PENNSYLVANIA ART.

porting, insuring and hanging pictures and works of Pennsylvania artists, and returning them at the close of the Fair. This was required in view of the fact that certain other States were proceeding upon that plan and would have distanced us in the competition otherwise. The recommendation of the Executive Officer was unhesitatingly agreed to, and the artists themselves, and others interested in Art, promptly and enthusiastically responded to the invitation to present their work for exhibition

The artistic activity of the State is demonstrated by the fact that Pennsylvania had important representation in all of the six groups into which the Department had classified its exhibits. The extent of this participation is shown in this general summary.

Group	9,	comprising Paintings and Drawings,	145
"	10,	" Etchings and Engravings	7
"	11,	" Sculpture,	36
"	12,	" Architecture	104
"	13,	" Loan	14
"	14,	" Applied Arts	107

Making the whole number, 413.

The total number of Art Exhibits in the United States section was 3668. Pennsylvania's proportion, therefore, was approximately nine per cent.—a handsome showing, considering that the exhibits were

PENNSYLVANIA AT THE WORLD'S FAIR.

gathered from all parts of the country and from the numerous communities of American artists in Europe.



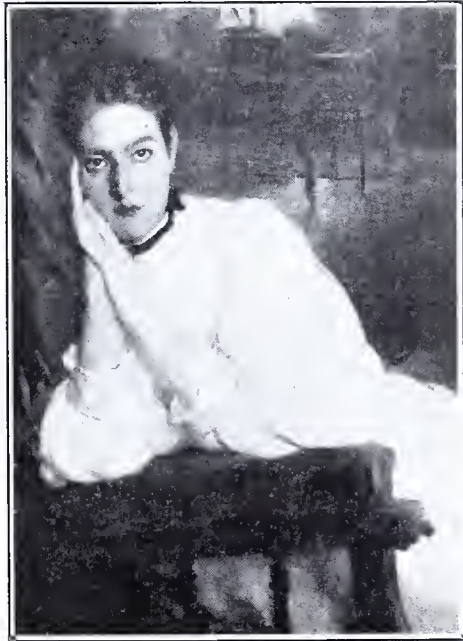
THE LANTERN GLOW--BRECKENRIDGE

It must be remembered also that the juries to whom the proposed exhibits were submitted subjected them to the most rigid scrutiny and selected only those that conformed to the highest standards of artistic excellence.

Pennsylvania was recognized by the Art Organization of the Exposition as an important centre. On the International Jury of Awards the State was represented in the group for Painting by Colin Campbell Cooper, Hugh H. Breckenridge, William H. Fox, who was Secretary, and who also represented Russia on the invitation of the Commissioner of that country, by Joseph Pennell, Chairman, and Alice Barber Stephens in the group for Etchings, Illustrations, Engravings and Lithographs; Charles Grafly for Sculpture, and Frank Miles Day for Architecture. Of the twenty-one

EXHIBITS OF PENNSYLVANIA ART.

members of the National Advisory Committee appointed to co-operate in the interests of the United States Section, five, or practically one-fourth of the total number, were chosen from this State. They were: John G. Johnson, Edward H. Coates, and Harrison S. Morris, of Philadelphia, and John W. Beatty and John Caldwell, of Pittsburg. On the Advisory Committee in the various classifications, Pennsylvania was well represented. On Paintings there were six members from the State, namely: Hugh H. Breckenridge, Thomas Eakins, John Lambert, E. W. Redfield, and W. Elmer Schofield. On the Committee on Water Colors, Pastels and Lithographs Colin Campbell Cooper, Charles E. Dana and G. W. Dawson represented Pennsylvania. In Sculpture the Pennsylvania members of the Advisory Committee were A. Sterling Calder, Charles Grafty and Samuel Murray. In Architecture: Frank Miles Day,



THE DREAMER—CECILIA BEAUX.

PENNSYLVANIA AT THE WORLD'S FAIR.

Wilson Eyre, and Edward V. Seeler. On Applied Arts: Herbert E. Everett, Gustav Ketterer and Emily Sartain. From the members of these Advisory Committees the various national juries of Acceptance were made up and these juries held meetings at different points to make selections from the works of Art offered for exhibit.

Among the Pennsylvania Painters whose work may be said to be specially noteworthy are Cecilia Beaux, who has been honored with Associate membership in the Societedes Beaux Arts, Paris, and recognized to be one of the foremost women artists in the world; Colin Campbell Cooper, who has discovered poetical qualities hitherto unsuspected in the architectural aspect of American business buildings; Thomas Eakins who contributed seven powerful and realistic pictures, two of which, depicting the great Pennsylvania surgeons, Doctors Gross and Agnew, lecturing in their clinics, are among the finest achievements of American paintings; Karl Newman and Albert Rosenthal, represented by characteristically vigorous examples; the admirable women portrait painters—Emily Sartain and Janet Wheeler; the representatives of a distinct and brilliant school of landscape painters,—Joseph R. Woodwell, of Pittsburg, and E. K. Redfield; W. E. Schofield, Hugh H. Breckenridge and Charles Morris Young;

EXHIBITS OF PENNSYLVANIA ART.

also the notable group of illustrators, comprising Jessie Wilcox Smith, Elizabeth Shippen Green, Charlotte Harding, Alice Barber Stephens, John Sloan, and Violet Oakley, who, with E. A. Abbey, has executed the mural decorations for the new Pennsylvania State Capitol.

Pennsylvania sculpture was a striking feature of the impressive collection in the United States sculpture court of the Art Palace. The late Edmund C. Stewartson's work, "The Bather," one of the best productions of American sculpture and one which shows how great a loss the State sustained in the early death of this promising artist, was installed here, and among others were important works of Charles Grafly, of Alexander Stirling Calder, and of Samuel Murray, who exhibited many portrait busts of well known Pennsylvanians.



EAKIN'S DR. GROSS.

Architecture had as its Pennsylvania representation many well known individuals and firms: among them

PENNSYLVANIA AT THE WORLD'S FAIR.

Frank Miles Day, Vice President of the American Institute of Architects, Albert Kelsey, projector of the Model Street of the Exposition and an authority on the modernizing of municipalities, D. M. Boyd, Wilson Eyre, Founder and Associate editor of "House and Garden," Cope and Stewardson, Architects of the Washington University Buildings, St. Louis—one of the most important of the group of buildings forming the architectural scheme of the Exposition; Rankin, Kellogg and Crane, Architects of the new building for the Argicultural Department at Washington.

The authorities of the Department of Art having for the first time in the history of the international expositions in this country included in the general classification of art those objects of utility which show the same originality, inspiration and technical skill in their making as is required in the production of other examples of the Fine Arts, this group, known as the Applied Arts, was enriched by the contributions of Henry C. Mercer, of the well known Moravian Potteries, of Doylestown, who exhibited a splendid collection of tiles, mugs and sconces; Alfred Godwin, showing ornate examples of ecclesiastical stained glass windows; Andre Koronski, who showed book plates and hand-wrought jewelry; Elizabeth Griscom Marot, and Mary C. Upton, fine book bindings, and

EXHIBITS OF PENNSYLVANIA ART.

William L. Price, who exhibited a collection of artistic furniture designed by himself and executed at Rose Valley.

To the splendid collection of foreign masterpieces, forming the loan collection of the United States Section, borrowed from individual collectors and art institutions, Pennsylvania made sumptuous contribution. Mr. John G. Johnson, of Philadelphia, was most enthusiastic and generous in the aid given to this department. The pictures loaned by him were; "On the Way to Pasture," by Charles Jacque; "Near Trouville," by C. Troyon, "Still Life," by A. Vollon; "Sappho," by A. Bocklin; "The Thames—London", by C. Bastien Le Page; "Peace," by Puvis de Chavannes; "War," by Puvis de Chavannes. Mr. E. Burgess Warren, of Philadelphia, loaned "Morning on the Oise," by Daubigny; "Marriage of Napoleon III," by E. E. G. Isabey; "Portrait of the Painter's Wife," by J. F. Millet. Dr. Charles Cadwallader, of Philadelphia, contributed "The Rape of Europa," by Coy-pel, presented to the owner's grandfather, General Thomas Cadwallader, by Joseph Bonaparte, the ex-King of Spain. Mr. G. E. Page, of Pittsburg, loaned "The Portrait of Mrs. Page," by William Page, one of the American Masters of the Past, while Mr. H. C. Frick, of Pittsburg, sent "The Music Lesson," by

PENNSYLVANIA AT THE WORLD'S FAIR.

Ver Meer, of Delft; "The Water Fall," by Solomon Ruysdael; "View of Dieppe," by Daubigny. It will thus be seen that the Pennsylvania display in the Department of Art was of the highest importance, and



THE THREE BOATS—REDFIELD.

a comparison with the contributions of other States discloses the fact that, omitting the Applied Arts, substantially a new movement, Pennsylvania stood second to only one other State, New York, in point of numbers, and second to none in character.

Many awards were distributed to Pennsylvania

EXHIBITS OF PENNSYLVANIA ART.

Artists on the merit of their exhibits, those serving on the Jury being out of competition by reason of the exercise of their judicial function. In the group of paintings Thomas Eakins and Cecilia Beaux were given Gold Medals. Silver Medals were awarded in the same group to Thomas P. Anschutz, Edward W. Redfield, Charles Morris Young, Elmer A. Schofield, Janet Wheeler and Violet Oakley; and Bronze Medals in the same group to Ellen Wetherald Ahrens, Louise Wood, Emma Lampert Cooper, (Oil), Marianna Sloan, John Irwin Bright, Paul M. K. Thomas, Albert Rosenthal, Elinor Earle, Emma Lampert Cooper (Water Color). In the group including etchings, illustrations, engravings and lithographs a Gold Medal was awarded to Violet Oakley; Silver Medals to Charlotte Harding and Jessie Wilcox Smith; Bronze Medals to Elizabeth Shippen Green and Max Rosenthal. In the group of Sculpture, Silver Medals were awarded to Alexander Stirling Calder and Samuel Murray. In the group in which Architecture was displayed Silver Medals were awarded to Cope and Stewardson, to Wilson Eyre and to Rankin, Kellogg and Crane. In Applied Arts a Grand Prize was awarded Henry Mercer, and a Bronze Medal to Elizabeth Griscom Marot.

The works exhibited in the Department of Art under the auspices of the Pennsylvania Commission

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were far from comprising the full strength of the State's display. Much of the prestige won by other states should, strictly speaking, belong to Pennsylvania. From all parts of the country and from Europe were sent exhibits by artists who owe to Pennsylvania



IN THE PASTURE—HENRY S. BISBING.

their birth, their artistic training for the recognition obtained through the painting of Pennsylvania themes.

Among those whose works were of special distinction and which gained for them high awards at the hands of the International jury were: John S. Sargent, who received the only Grand Prize in the group of

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Paintings awarded in the American Section, was born and educated in Europe, but is of Philadelphia lineage and has painted for extended periods in that city, adding many prominent Pennsylvanians to his lists of notable portraits; John W. Alexander, born in Pennsylvania in 1856, has exhibited frequently in the Pennsylvania Academy of Fine Arts and has taken prizes there and at many other exhibitions; J. McLure Hamilton, born in Philadelphia, has painted many portraits of the citizens of his native City, his portrait of Richard Vaux, once Mayor of Philadelphia, was one of the fine portraits of the Exhibition; William M. Chase, who though born in the West, has identified himself for years with Pennsylvania Art, being for years a professor in the Pennsylvania Academy; Robert W. Vonnoh, was for some time a resident of Philadelphia and also taught at the Pennsylvania Academy; William T. Richards, one of the greatest marine painters America ever produced, was born in Philadelphia and is a graduate of the Academy; Jules Stewart, who was born in Philadelphia, is one of the most prominent of the American artists residing in Paris and has taken more honors at international exhibitions; William Sergeant Kendall, who was a pupil of Thomas Eakins and the Pennsylvania Academy; Henry R. Poore, who was a pupil and who is at present instructor at



SCULPTURE GALLERY DEPARTMENT OF FINE ARTS.

EXHIBITS OF PENNSYLVANIA ART.

the Pennsylvania Academy; Henry S. Bisbing, celebrated for his animal pieces and another prominent member of the American colony in Paris, was born in Philadelphia and was a pupil in the Academy; F. K. M. Rehn, distinguished for his marines and water-colors, a pupil of the Academy and the famous Philadelphia teacher Christian Scheussele; Arthur Parton, whose poetic landscapes attracted so much attention, a pupil of William T. Richards in Philadelphia; Robert Blum, who recently died, enrolled among the pupils of the Pennsylvania Academy; W. L. Lathrop who resides at New Hope, Pennsylvania; Henry O. Tanner, born in Pittsburg and a pupil of the Pennsylvania Academy, now residing in France—the French Government purchased one of his representative paintings for the national collection in the Luxembourg; William H. Coffin who was director of the Fine Arts Department of the Pan American Exposition, born in Allegheny City, and has derived much of his inspiration from the beautiful scenery of his native State; Robert Henri, who was another pupil of the Academy and for a long time a teacher in the Philadelphia School of Design for Women and whose portraiture possesses much of the subtle quality of Whistler's work; Edward L. Henry, a pupil of the Pennsylvania Academy and of F. Weber, distinguished for his painting illustrative



THE EARLY AGE OF DIPLOMACY.—ELIZABETH L. BURTON.

EXHIBITS OF PENNSYLVANIA ART.

of life in the early days of the country—his first railway train received a special medal at the Columbian Exposition of Chicago; Joseph Pennell, the famous etcher and illustrator, who although a resident of London, was born and educated in Germantown, Philadelphia, and was trained in the Pennsylvania Academy; Maxfield Parrish, another of the most distinguished of American illustrators, also a pupil of the Academy; George Gray Barnard who was born at Bellefonte, Pennsylvania, and has the commission for the sculptural adornment of the new State Capitol and is one of the most distinguished names in American Sculpture; John J. Boyle, also a pupil of the Pennsylvania Academy, whose great work "The Stone Age" ornaments Fairmount Park, Philadelphia, and whose statue of Benjamin Franklin stands in front of the United States Postoffice in that City.

The Commission is confident that Pennsylvania's display will do much to perpetuate the noble artistic traditions of the State.



THE EARLY AGE OF METALLURGY.—ALICE MUMFORD.

THE STATE EDUCATIONAL DISPLAY.

ORGANIZATION OF THE WORK—SELECTION OF SUPERINTENDENT ADDISON L. JONES FOR DIRECTOR—ASSISTANCE OF SUPERINTENDENTS DIRECTORS, PRINCIPALS AND TEACHERS IN THE PUBLIC SCHOOLS SOUGHT—OFFERS OF PRIZES FOR THE EXHIBITS AND THE WINNERS—BEAUTY AND ATTRACTIVENESS OF THE INSTALLATION—PORTRAITS OF THOSE DISTINGUISHED IN PENNSYLVANIA EDUCATIONAL HISTORY—ALL GRADES OF SCHOOL WORK AND ALL SECTIONS OF THE COMMONWEALTH REPRESENTED IN A DISPLAY MORE COMPLETE AND ILLUSTRATIVE THAN ANY BEFORE UNDERTAKEN ON BEHALF OF THE STATE.

THE Palace of Education at the St. Louis Exposition was the first at any International Exposition on this side of the Atlantic exclusively devoted to educational exhibits. It was erected in the center of the Exposition activities, and covered 210,000 square feet of ground space, approximating five acres, and designed in modern classic style was one of the most beautiful structures of the main group. In this magnificent building every means for a display to the best advantage was offered to the schools of the world. In the allotment of space Pennsylvania received not more than one-half that which it desired to illustrate its common school system, but the space granted finally was a most eligible one, being Block Two, near the main entrance from the north, and adjoining Mas-

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sachusetts and near New Jersey and New York. It was rectangular in form, thirty feet by seventy-two feet, bounded by the two most prominent aisles in the building.

The importance of the Educational Exhibit was promptly realized upon the organization of the Commission. The Executive Officer gave his direct personal attention to the work, and selected Superintendent Addison L. Jones, of West Chester, to take immediate charge of the preparation of the display, with the title of Director. This selection was confirmed by the Committee on Education: Messrs. George H. Earle, Jr., of Philadelphia, James McBrier, Erie, and H. H. Gilkyson, Phoenixville. Superintendent Jones began at once to formulate plans for the preparation, collection, and installation of an illustrative exhibit from the public schools of the State. His plans were submitted to, and accepted by Executive Officer Lambert and the Committee on Education.

As a first step a circular letter was sent to all superintendents, supervising principals, and other school officers in the Commonwealth early in September. It embraced an introductory address by the Executive Officer, an appeal by Dr. N. C. Schaeffer, Superintendent of Public Instruction, and explicit directions by Superintendent Jones. Graded prizes were also offered



SUPT. ADDISON L. JONES
DIRECTOR OF EDUCATIONAL EXHIBIT

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for the best exhibits sent to West Chester—where the Exhibits were assembled—a jury appointed by the Committee to make the awards.

In accordance with the classification as made by the Exposition Department of Education it was necessary to make a collective exhibit of all the work except that from Philadelphia; the best work of a grade to go together, no matter from what district it might come, so that the state should be the unit of the exhibit rather than the district. To the educator seeking information and help this arrangement was most convenient, and it was equally attractive to the casual visitor; but as each district was not allowed to have all of its work together and thus form a unit of the exhibit, several of the more prominent school districts of the state did not take part at all in the display.

At a meeting of the normal school principals and State Superintendent N. C. Schaeffer in November an address and suggestions were read by Superintendent Jones, describing the importance of the competition, and presenting a plan for a proper normal schools' display.

It was decided that the normal schools and the Department of Public Instruction should make a collective exhibit. In each normal school a committee was appointed to promote the proposed plans, and

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the work was well started. In the scheme suggested, the tabulation of statistics and the working out of training school problems were assigned to different committees, all of whom did their work. This was the first exposition in which all of the normal schools have been represented.

Plans for the booth or enclosure of the space allotted to Pennsylvania were submitted by several architects. That of Arthur E. Willauer of West Chester was selected by the Executive Officer as best adapted to the display of the state educational exhibit. It was considered one of the finest booths in the Palace of Education, and reflected well the taste of the architect and the good judgment of those in charge of the work. The wood used was chestnut, the color of which varied, with a dark background of greenish tint, producing a very pleasing effect. The heavy twin Ionic columns, with their large capitals, gave a substantial dignity to the entrances from the two aisles.

Nearly all the material for the exhibit was collected in West Chester by March 1, 1904. To classify, arrange, and catalogue this matter, and to install it at St. Louis, two very capable assistants to Mr. Jones were appointed: Miss Alicia M. Zierden, a graduate of Bucknell University and a teacher in the public schools of Dubois, was made first assistant. Miss

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Zierden had done valuable work in the departments of education in the expositions at Buffalo and Charleston. She continued in charge at the exhibit at St. Louis in the absence of the Director, and cared for the packing and shipping of the material at the close. Prof. T. L. Gibson, formerly superintendent of the public schools of Cambria County, more recently one of the most popular institute instructors in the state, assisted in the preparation and installation of the material. Prof. Gibson's care and good judgment added much to the artistic finish of the exhibit.

On February sixteenth the work was so placed in the library of the West Chester State Normal School that the jury appointed by the Committee on Education could view all of it. This jury consisted of Joseph S. Walton, George School, Bucks County, Miss Sarah Pennypacker, Philadelphia, and Prof. Smith Burnham, West Chester. They awarded prizes as follows: High School Class: First Prize, Reading; Second Prize, West Chester; Third Prize, Williamsport. Manual Training Class: First Prize, Braddock; no Second Prizes were awarded. Graded School Class: First Prize, West Chester; Second Prize, Reading; Third Prize, Harrisburg. Ungraded School Class: First Prize, Indiana County; Second Prize, Tredyffrin Township, Chester County

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Third Prize, Cheltenham Township, Montgomery County. The jury was to have made its award February first, but it did not meet until two weeks after. Yet, even at this time, not all of the work had arrived. Much excellent material came later, so that it was not in the competition for the prizes.

Philadelphia did not appear in this competition for the reason that the school authorities of that city were preparing their own display under the immediate direction of Superintendent Brooks. It had been decided to give Philadelphia space equal to one-fourth of the entire section, and its exhibit was therein installed. It was one of the most complete and interesting collective city displays at the Exposition, a full description of it being given in the next succeeding division of this report.



T. L. GIBSON.

Directly after the preliminary exhibition the work was assembled and prepared for shipment. There was much difficulty, on account of congestion in freight traffic and adverse labor conditions in St. Louis, in getting the booth ready and the installation complete

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by May first. By most persistent effort and tireless energy on the part of all, Pennsylvania's booth was one of the few blocks complete and in form for visitors on opening day. The booth was furnished with wall cabinets each containing thirty-plates, shelves, and show cases; with large base show cases, and furniture that came directly from the manual training shops of the public schools.

Over the pillared entrances, on each of the inner sides of the enclosure, there was a series of portraits of leaders in Pennsylvania educational history loaned by the Department of Public Instruction. On one side, Samuel Breck, Thomas H. Burrows, Henry L. Dieffenbach, and Charles R. Coburn; and on the other, facing these, State Superintendents J. P. Wickersham, Elnathan Elisha Higbee, David J. Waller, and Nathan C. Schaeffer. These life-like portraits, heavily framed in gold, in pleasing contrast with the dark background upon which they hung, occupied a commanding position, attracted much attention, and received many favorable comments.

A fine oil painting of Thaddeus Stevens, loaned by the Lancaster City School Board, occupied a conspicuous place upon the wall at one end of the group, and naturally challenged the immediate attention of all visitors. This portrait had been given so prominent

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a position in memory of an important event in the school history of Pennsylvania, Stevens in 1835, while a member of the General Assembly, having prevented the repeal of the law for the establishment of common schools, which had been enacted the year before. The bill had been passed mainly through the efforts of the late Samuel Breck.

The beautiful chairs and ornate settees in heavy golden oak which occupied the middle of the area, and gave comfortable, restful welcome to hundreds of weary sight-seers, were made by the pupils in the manual training schools of Philadelphia. Other furniture, such as rocking chairs, stands, pedestals, came directly from the hands of the several manual training schools of the State.

The work of all the kindergartens appeared together, likewise the first grade, and so on through all grades. The high school and normal school work was arranged by subjects, the papers in one branch appearing in a cabinet. This arrangement was more convenient to the high school teacher who is usually a specialist, while the teacher in the grades is compelled to know the methods in all subjects of her curriculum.

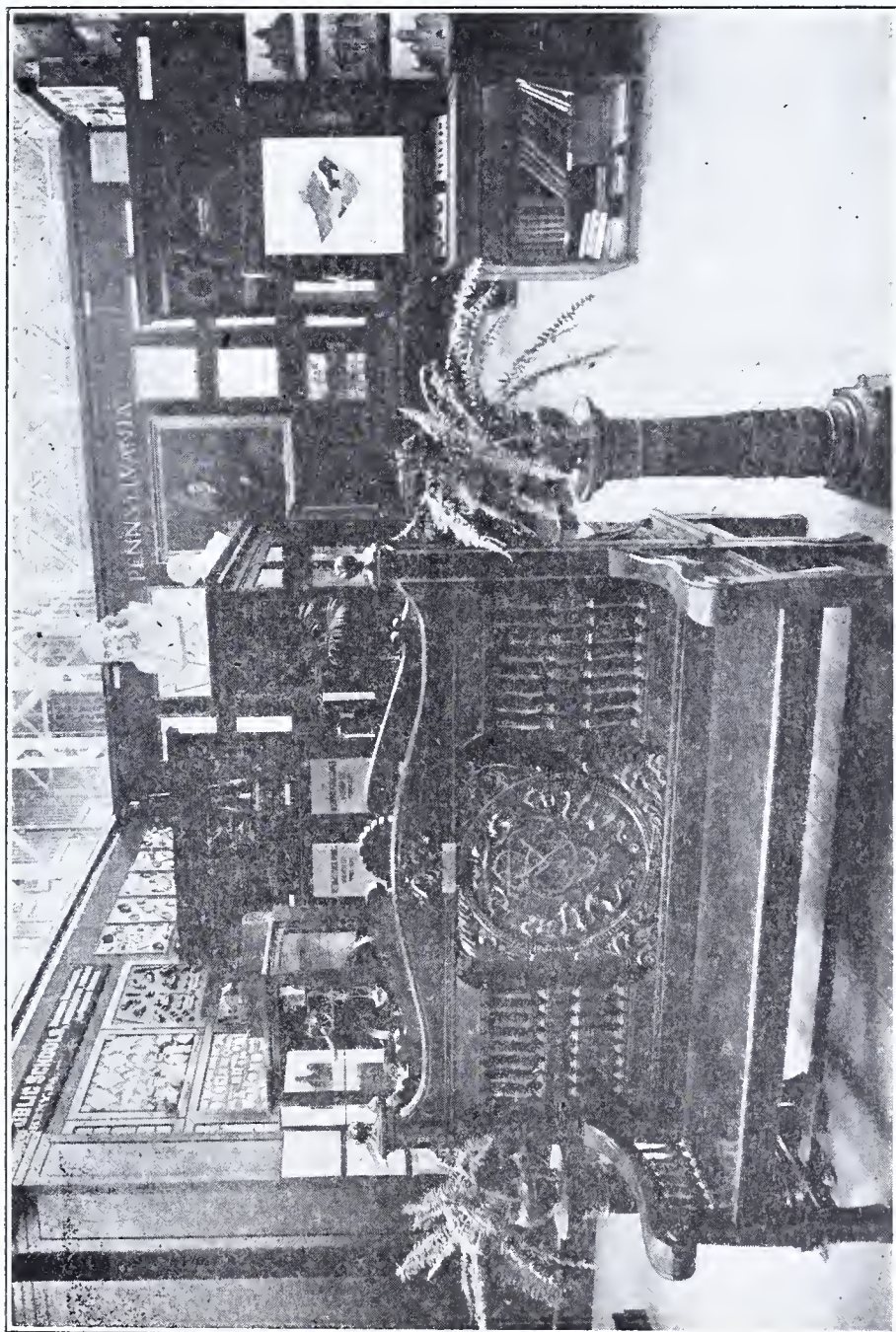
Where there was sufficient work from the district so that a subject formed a volume or filled a cabinet, it was installed together, always with the name of

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the city or district plainly marked, and the name of the pupil on every article contributed. The work was so carefully arranged that the attendants could invariably find the material prepared by any pupil whose work was on exhibition. The display was made on the inside walls of the booth, in leaf cabinets, base stands, and special show cases. It was classified under the heads of work ungraded and graded, rural schools, graded, high, manual training, normal, and special schools.

On the walls and in portfolios there were more than two thousand photographs of school buildings; interiors with children at work and at play; manual training classes in sewing, basketry, weaving, in the shops and the garden; plans and drawings in full of model rural school buildings, evolution of the present day school house, showing the first log school building and its successors, until the modern school structure is reached; noted places and buildings, particularly in the educational history of the state; and a very full series of normal school buildings, classes, shops, and models, all mounted.

Most of the written work in the several branches of studies, and some of the drawings, from the respective grades were nicely bound in cloth, a subject to itself, labeled with the branch and quite frequently



PENNSYLVANIA EDUCATIONAL EXHIBIT, LOOKING EAST.

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with the district. In nearly all the volumes were found teachers' statements, describing in full the method of teaching, with other information necessary to a full understanding of the work and its value in a system of education.

Maps and charts were placed in the leaf cabinets and in portfolios. There were three thousand such charts, twenty-two by twenty-eight inches, illustrating every grade and department of school work. There were nine hundred and sixty bound volumes. There were series of charts showing graphically the growth and extent of high school instruction, teachers' tenure of office and salaries; progress and programs of evening schools, elementary, manual, and high; the origin, value, and results of township high schools; the history, courses, and to some extent the work of the normal schools; the extent, educational necessity, and practical use of school libraries. There were also charts showing at a glance the status of nearly all lines of educational advancement as well as forming the basis of work for the student who desires to study pedagogy and the history of education.

The exhibit from the manual training schools was various and full, including work from the manual training classes in wood and iron, paper cutting, weaving, and basketry, domestic science, and sewing. This

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work was greatly admired and on account of its excellence and arrangement attracted an almost continuous line of visitors. As in all other parts of the exhibit, the work was arranged by grades and the maker's name appeared on every article.

C. B. Connelly, Supervisor of Industrial Schools, who prepared the excellent exhibit from Allegheny City Schools, gives the following description of the work: "This exhibit, which consists of some kindergarten occupation, drawing, manual training of the lower grades and grammar grades, domestic science and domestic art is characteristic of the place, time and people. Of the place, because situated, as these schools are, in the great industrial center of Western Pennsylvania; the time, because our school boards and parents are alive to the demand of this industrial age and that such a period calls for men and women who can do things; of the people, because in no other community can you find a keener interest shown on the part of pupil and teacher.

"It would also seem fitting to draw attention to the fact that this hand-training is not set apart for any one grade or age, but is as thorough and progressive from the kindergarten through the whole school course to the high school, as our wisdom and present knowledge of child-nature has made it possible to be.

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"1. Kindergarten hand-work, paper folding, paper cutting, paper mat weaving in the various shades and tints of color, picture sewing and geometric designs or beauty forms, card board modeling in light weight materials. These so-called occupations of the Kindergarten illustrate the definiteness which is required to fold exactly, think clearly, work diligently. The child has gained in the use of these materials a knowledge of form, size, color, number, position, and direction. In everything we endeavor to develop symmetry of design and harmonious combinations of color. The exhibit is not elaborate but purely the child's own work in the Kindergarten, between the age of four and six.

"2. Drawing, art work, color, nature, in the Primary grades, and in the higher grades, composition, historical ornament, and original design, paper cutting and folding, fore-shortening and convergence of line in type forms, in tower and spire; design work and brush work, perspective of interiors, landscape, action and proportion in figure study. The Kindergarten work is followed in Primary grade by work of like nature, but more complicated in design and calls for greater dexterity and clearer perception. More detailed work with the brush is executed. Later the free-hand drawing and color work lead the pupil to a

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comprehensive knowledge of the outline of the object, of landscape, or whatever it may be, and gives him an incentive to create truly and sometimes ideally nature, and the world about him. He pictures flower, fruit and vegetable, and is led also to originate and design for ornamentation. Relative values in art are considered; the value of light and shade.

“3. Elementary manual training: Cardboard work with decorations in colored worsteds and raffia; basketry in both round reed, flat reed and raffia, Indian stitches in color. Simple models, such as handkerchief boxes, with original designs for decoration; book-marks, reed and raffia mats, small baskets, large baskets of different sizes and designs. Following the knowledge and ability gained by the previous creations of the child, we introduce a course of constructive work and objects are made and decorated which more nearly approach handicraft. Most of the models under this head are more durable and useful perhaps than those of previous years. But at no time do we specialize upon constructions of useful to the exclusion of the beautiful, for the aim is culture through industrious work in creation of useful and beautiful.

“4. Knife Work: Models made by the knife in soft woods; thread-winder, brackets, shelves, picture frames. The first tool is introduced in this course;



PENNSYLVANIA EDUCATIONAL EXHIBIT, LOOKING WEST.

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It is simple and the pride of the boy—a knife. All models are cut with the knife and fastened together with small brads, or glued. Accuracy of measurement is absolutely necessary and the compass and its use are also indispensable. Much skill is developed in this work and interest aroused in tool work of various kinds.

“5. Venetian Iron Work: Useful and ornamental construction in artistic shapes and curves to form brackets, pen-holder stands, ink stands, lanterns, picture frames, candle sticks, frame work for small houses, and bridges. The work in Venetian Iron is especially beautiful and artistic on account of the innumerable designs and patterns which can be applied. It lends itself to the construction of beautiful curves and spirals and is especially adapted to the training of the eye in balance and symmetry. Some strength of hand and skill is required to enable the boy to accomplish good work. Many a home has been ornamented by artistic brackets, lamps.

“6. Bench Work in Wood: Consisting of models different splices and joints. Project work consisting of stools, benches, cabinets, tabourets, chairs, tables. Lathe work consisting of dumb bells, swinging clubs, cups, vases, and model for pattern work. The models of the bench work bring into play a varied number

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of processes as planing, sawing, chiseling, varnishing, polishing, which tend to make a thoughtful, methodical and attentive pupil, with some idea of the values of such processes. The larger projects made by individual pupils, we exhibit with pride to show what can be accomplished by a school boy or girl after thorough training. The interest and industry displayed throughout the work on these articles is gratifying, but the knowledge of processes in making of models and development of character during the process is where the real value lies. The turning lathe work is also an interesting feature in this stage of manual training, as it develops manual skill in entirely different and intensely interesting manner.

"7. Pattern making consists of pipes, wrenches, "T" squares, sheave wheels, pillow blocks, brackets cranks, and face-plates. The knowledge of pattern making could not well be omitted. It introduces the pupil to a set of models, the use of which things in machinery and different occupations is learned in no other way.

"8. Moulding in metal of pipes, nuts, elbows, wrenches, "T's" wheels, brackets, cranks, face-plates, valves, pillow blocks. Moulding has its value as an introduction to metals and process of melting. Casting of metals into form patterns, together with core making.

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“9. Mechanical Drawing: Free-hand sketching, free-hand lettering, views of elementary solids, geometric design, free-hand and instrumental drawings of tools used in wood shop, drawing of machinery, lathes, engines, geometric and perspective of simple figures, buildings. The value and necessity of free mechanical and free-hand drawing is so palpable, that it is hardly necessary to speak of it. Ideas of perspective and values of light and shade and the laws which govern any mechanical process or machinery is most necessary.

“10. Needle Work: Fundamental stitches with suggestions of color and proportion. Mending, darning, patching, sewing on of buttons. Hand made garments: aprons, dolls' dresses, children's undergarments and dresses. Machine Work: Plain dresses, and the higher grade of undergarments. Original designing: Baskets, collars, rugs. Fancy stitches: collars, pillows, doilies, handkerchiefs. Perhaps to most observers the exhibit of needlework, with its variety of design and daintiness of texture, or useful household suggestions, attracts the eye. It would seem particularly a training with utilitarian idea, but the artistic instinct is as really appealed to in this department as in any other. The most successful “modiste” is the one who can develop to a greater

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or less degree, the artistic ability and who can design quickly and artistically and also select harmonious combinations. Such training of artistic instinct is necessary in education of girls."

In addition to the manual training work, Allegheny made a very complete display in drawing and color work. The exhibit showed originality, skill, and careful training.

Braddock had a varied and extensive exhibit. Its work is the pride of those interested in the several forms of manual training. All the material is of uniform excellence. The models in knife work, wood turning, Venetian iron work attracted much attention. Among the wood work, were a trestle bridge, an old fashioned chair, a writing desk, a wall cabinet, a center table, a jardiniere and tabourets. A plaster of Paris model of the Old Block House at Pittsburg, so famous in American history, was a conspicuous item of the exhibit. Penmanship and language of good quality. The specimens of work from the mechanical and free-hand drawing classes were unusual in their excellence. Superintendent Grant Norris gave much time and care to the preparation of the exhibit.

Bainbridge in Lancaster County and Beaver Falls, sent work in penmanship, drawing, and botany, and their course of study.

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Bristol had excellent work in geography illustrating progressive map making, commercial geography, isotherms, rainfall. There was work in English, illustrating method of teaching languages through literature. Other work covered the branches taught in the grades and the high school.

Edge Hill, Montgomery County, had a good exhibit of work in language showing method of teaching and results attained, also maps drawn by pupils. There were photographs of the school buildings.

Fairfield School, Adams County, had written work from all pupils in arithmetic, geography, history, and specimens of penmanship.

Reade Township, Cambria County, had much written work of good quality, illustrating results in the several branches of study.

Chester submitted results in number work, a care-



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ful study of which well repaid the educator, showing in what features the teaching in Chester is unique and valuable. Photographs of all the school buildings were also in the exhibit. The writing exercises were from all pupils, and were arranged by grades. In addition, Superintendent A. Duncan Yocum exhibited matter from his office as follows: 1. Blanks intended to Stimulate Attendance: half-holiday certificates given for perfect attendance and conduct throughout one month, holiday certificate given for perfect attendance for three consecutive months, notice to parents of truants, inquiry-blanks sent to parents of pupils leaving school, notice to charitable organizations concerning pupils in need of clothing. 2. Blanks Relative to Scholarship: monthly reports special notice to parents of pupils likely to fail promotion. 3. Blanks Used in School Savings Bank system. 4. Means Used by Superintendent to Influence the work of his Teachers in the Absence of Other Supervisory Officials: outline of detailed requirements for teacher's examination, list of teachers, reading courses, monthly list of leading articles in educational periodicals accessible to teachers, outline of teachers' meetings, detailed syllable, pupil's progress report, and uniform oral test.

Clearfield had a strong exhibit of sewing and wood

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work. It gave a clear notion of the work as developed in the grades up through the high school. The work was uniformly meritorious.

Conshohocken sent a full and varied exhibit of work from all grades and branches. Several volumes of bound work of good quality belong to this borough. The products of the sewing room covered material from the first year through the high school. The utilitarian side of sewing was well developed.

Chester County Rural Schools: Photographs from Ercildoun, East Marlborough, Modena, Chatham, Whiteland, Londongrove, Malvern, Schuylkill, and Tredyffrin districts showed the advancement in school architecture and furniture. Downingtown sent a series of history papers showing excellent method in teaching the subject. Berwyn prepared graphic work in the primary grades and charts illustrating drawing color work. Tredyffrin District prepared work of unusual quality and scope—papers in language, arithmetic, geography, and history from all grades. There was excellent work in nature study and local geography. As aids in teaching local history there were a pulp map and a full line of photographs of Valley Forge, groups of historic pictures for teaching the Battles of Brandywine, Germantown, and Gettysburg. There were drawings and color work from all grades.

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A most interesting set of photographs illustrated the evolution in school buildings in Tredyffrin Township. The exhibit from this rural district was of great value as showing what can be done in the country when the conditions are made favorable by a progressive school board and excellent teachers.

Connellsville sent written work from all grades, specimens of penmanship, with methods of teaching drawing and water color work.

Ebensburg submitted work from all the grades making an exhibit that showed the work of the schools.

Delaware County, submitted photographs from Haverford and Wallingford Districts showing their school buildings and grounds. Darby Township beside photographs of buildings and ground sent specimens of work from the schools in several branches and the course of study. Lansdowne borough schools sent photographs and very good work from the kindergarten schools also written work from the grades.

Erie presented an unusual set of photographs showing buildings and grounds. Interior views in the library and high school buildings were much admired.

Fayette County, Banning School sent several drawings, pen and ink sketches, and water colors.

Greene County, Morris and Centre Districts sent

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specimen work from all pupils in all grades, also drawings, and course of study.

Greensburg had one of the very strong exhibits. Lines of work in all grades, showing methods of teaching penmanship. The progress of pupils is marked from the first year. The results in the eighth grade are remarkable. The writing is not only uniformly legible but as uniformly beautiful. In drawing, the method of teaching is again very clearly illustrated, the results showing much improvement from grade to grade. In addition, the written work in arithmetic, language, spelling, civics, and geography was the best. Much credit is due Superintendent E. J. Shives and his corps of teachers for the fine showing of work.



SEWING WORK, WEST CHESTER

Harrisburg was represented by a very complete exhibit of drawing from all the grades including the high school. Also by a variety of work in manual training. In the grades the drawing was as follows:

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Assorted work progressing from the primary to the high school given from year to year. They show freedom of treatment in individuality of expression which gives evidence of the training the pupils receive. The mediums used were pencil, colored papers, colored pencils, brush and ink and water colors. The drawings are from nature, from models, and from pose, in varieties of each kind.

The manual work from the primary grades included weaving on looms, rugs, hammocks, Tam O'shanter, and horse lines, from cotton and woolen yarn with simple work in basketry. From the grammar grades card board construction, decorative lamp shades, rattan and raffia basketry in a variety of shapes, designs, and colors such as waste baskets, sewing baskets, basket boxes, baskets for carrying by hand, standing and hanging. Bottles and flasks were covered with wicker and rattan. A baby's rattle of rattan and a stool from the same material and a number of hats from the raffia. From the high school, a large variety of mechanical and industrial drawings representing many kinds of work in both mechanical and industrial lines. There were also some specimens of work in wood made by the boys in the Special or the Truant School. Superintendent Foote, Miss Hagan, the Art Supervisor,

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as well as the teachers made a highly creditable showing for the city.

Superintendent J. T. Stewart of Indiana County, succeeded in gathering from his schools an admirable collective exhibit. Work from thirty districts, covering all subjects taught in ungraded schools made a display unexcelled by any other rural community. It was installed together and attracted much attention. The branches represented were drawing, writing, nature study, composition and language, busy work, history, and geography. The influence upon the schools sending work is incalculable. Excellent handiwork not only pleases the one seeing the work, but as well reflects itself upon the author and aids him in reaching future best results.

Superintendent J. M. Berkey of Johnstown and his teachers made a full exhibit of work done in their city. The work was all very carefully mounted. In nearly all classes it was regular school work, the pupils in many cases not knowing that their written recitation was to be preserved for any particular purpose. The methods were plainly indicated, so that with course of study in hand, the visitor to the Exposition could get not only the results as he saw them on a set of papers, but the steps taken in the grades below and the method pursued. The work included manual

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training products from seventh, eighth, and ninth grades; language and composition reviews conducted by the primary school supervisor; written tests in arithmetic, the questions being submitted by the superintendent and the results making part of the basis for promotion; written work from all branches of study. From the high school, there were specimen papers in history, Latin, and trigonometry. In each volume, a photograph of the school whose work was included, served as a frontispiece. A large number of photographs of buildings, equipments, study rooms, auditorium, and pupils made a valuable and interesting addition to the written work.

The Lancaster School Board loaned to the Committee on Education a life size painting of Thaddeus Stevens, intended for the new High School of the City. Stevens's connection with the establishment and retention of the public school system of Pennsylvania is so important that this portrait was given the most conspicuous position in the booth. Lancaster City sent photographs of school buildings and a descriptive chart containing the history of the Lancaster High School Orchestra, and a group photograph of the members and their instructor. Dr. J. P. McCaskey, Principal of the Lancaster High School, prepared descriptive charts on Lincoln, Lessons in Graphic Geo-

THE STATE EDUCATIONAL DISPLAY.

graphy, Good Arbor Day Work, Good Music Work, Good Memory Work, The Pennsylvania School Journal, all of which were much admired.

Lansdale provided specimens of pupils' work illustrating the course of study in all the grades, also specimens of penmanship from all the pupils, with course of study.

Newport District, Luzerne County, exhibited a full set of papers in drawing, illustrating the first sketch, corrected, and the improved drawing.

Hepburn District, Lycoming County, sent good photographs of all the school buildings, several interiors, and grounds; special drawings, and course of study.

Milton sent good color work from all the grades, drawings, a volume of written work illustrating methods in the several branches of study, and course of study.



VIEW IN EDUCATIONAL SECTION.

Supt. Charles Wagner and his teachers of Cheltenham District, Montgomery County, prepared a full and varied exhibit. The subject of writing was ex-

PENNSYLVANIA AT THE WORLD'S FAIR.

haustively treated. A set of photographs showing pupils writing, illustrating position of body, hand and paper, and specimens of work done; a set of charts illustrating drill work and speed practice for each grade from the second to the ninth inclusive; and bound specimens of writing showing excellent results attained through the methods used, made up this part of the exhibit. There were also photographs of school buildings, grounds, interiors, and pupils at work.

Ringling Hill School, Montgomery County, sent specimens of pupils' work, course of study, and photographs of school buildings and grounds.

Morrisville, Bucks County, prepared work in all the grades illustrating the branches studied. There was also a bound volume of specimens of penmanship.

The work of the Norristown schools completely illustrated the different departments. Bound volumes of written work covered the academic work of the grades. Supt. Joseph K. Gotwals, while one of the oldest school men in the state is one of the most progressive. His schools showed excellent work in the manual training departments. The sewing was graded from the handiwork of the little girl who has her first lesson to that of the high school girl who exhibits the dress that she has made for her graduation. In ad-

THE STATE EDUCATIONAL DISPLAY.

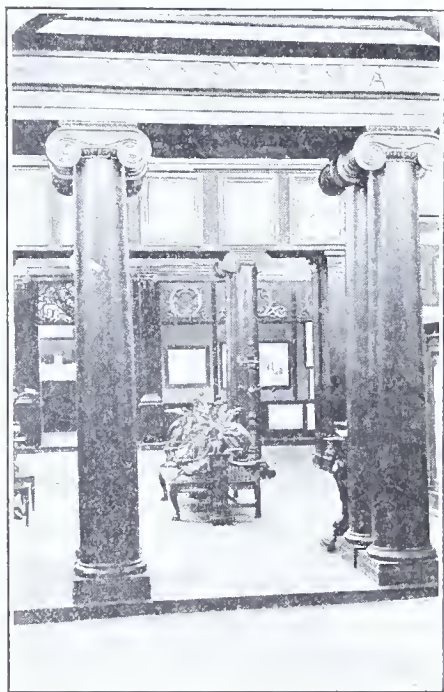
dition to a great variety of products from the sewing room, there were charts illustrating the course of study. In the wood-working department, there was a line of work from the first piece to the finished models for a lather. The drawing department illustrated a course from the design from the nature study classes, through pencil sketches, water color, crayon work, to a set of mechanical and working machine drawings. A large number of photographs, added interest to the exhibit. All of the exhibit was of excellent quality and won much praise.

Oil City showed work from all grades and the high school illustrating methods of teaching and results obtained. The papers from the high school were carefully written, showing admirable teaching and close supervision, and formed several bound volumes. The photographs of school buildings and interiors were full and showed most artistic work. Supt. Babcock's two little volumes on birds interested many visitors. They not only suggested method for teaching how to know birds and their habits, but as well kept up an interest in birds and taught how to care for them.

Phoenixville sent a number of drawing books, several charts of botanical work, writing from the grades, and a full line of drawings from all the grades. Kindergarten and primary paper cutting, weaving,

PENNSYLVANIA AT THE WORLD'S FAIR.

and nature study made an interesting exhibit. Designs to commemorate Thanksgiving, Christmas, Washington's Birthday, and Easter illustrated many original



PORTAL PENNSYLVANIA EDUCATIONAL
SECTION.

features. The display also contained a school directory and a course of study.

Metamoras District, Pike County, illustrated what excellent work can be done in ungraded schools under ordinary conditions. The work in nature study showed collections of insects and objects with drawings as well as papers descriptive of objects studied. The bound volumes of drawings and penmanship were unusually good.

Plans of the buildings and photographs accompanied the pupils' work.

Pottstown had a unique exhibit showing methods used in teaching good memory work, from first grade through the high school; by means of charts, teachers' hand-books, and the selections, visiting teachers could get a very clear notion of the method and the matter.

THE STATE EDUCATIONAL DISPLAY.

Charts and photographs made clear the means used in the grades for teaching latitude and longitude, the reading of the barometer and thermometer, measuring rainfall, the use of the library and museum in the study of geography and history. Many photographs of buildings, classes in physical culture, teachers' rooms, pupils at study and at play added much to the beauty of the display. Supt. Rupert and his assistants did much to make the exhibition of school work from Pennsylvania interesting.

Reading sent a most complete exhibit of school work in all the branches of the grades and in nearly all the high school branches. Much of the work was taken from the classes, mistakes marked by the teachers, and then rewritten. Many of the papers in language, geography, history, and physiology were illustrated with pictures pasted on the descriptive articles in the lower grades, and hand drawn diagrams and pictures in the upper grades. The neatness and accuracy of the work particularly from the primary grades, elicited many favorable comments. The illustrated papers from the classes in zoology, botany, and physics were unique and of excellent quality. The work in the drawing was of the best, showing the gradation throughout the entire course of study. There were many photographs of buildings, class

PENNSYLVANIA AT THE WORLD'S FAIR.

rooms, and classes at work. From the superintendent's office were a set of valuable school blanks essential to the collection and tabulation of school statistics, for attendance, tardiness, books, stationery, and every detail for which a school board looks to a superintendent for precision and prompt returns. A set of papers from the evening schools, including the high school, department was also sent. Much of the work was of good quality, that from the drawing rooms being of excellent design and workmanship.

In addition to the foregoing, Superintendent Charles Foos, by means of answers to a series of questions to teachers, tabulated valuable material relative to night schools in Philadelphia. In the chart he not only reported the districts maintaining night schools, the number of pupils, and months of the year open, but also ascertained the ages of the pupils, their vocations, aims, vocations of pupils who left, cause of leaving, branches taught, most numerous students in branches. The charts were exceedingly interesting and very valuable to the educator who is looking into the matter of compulsory attendance at school and the night school problem.

The exhibits from the office of the City Superintendent of Scranton showed programs, record, reports, and blanks of various kinds as used in the city to

THE STATE EDUCATIONAL DISPLAY.

facilitate the proper control and classification of the pupils. By this means a complete and permanent record is kept of all that pertains to scholarship and to the administration of the schools. A card index serves to locate pupils during every period of the day.

In the commercial Department were found the course of study, charts showing commercial department rooms in the high school, banks, commercial houses, industrial plants, railroad stations, and depots of the city; charts showing improvement in writing, specimens in book-keeping, commercial arithmetic, and commercial geography; charts showing selected business forms, sign card writing, illustrating travels of checks, forms of transportation companies, forms for the transmission of money, work of commercial geography classes, type writing work, tabulating work, copy of will, set of specifications, methods of teaching correspondence, work duplicated by means of carbon paper, copying press work, outline of public school building done on type writer, high school color and yell. In stenography there were charts showing extracts of testimony of John Mitchell given during the sitting of the Strike Commission, and a type written transcript of the same, matter dictated to pupils at the rate of ninety words a minute.

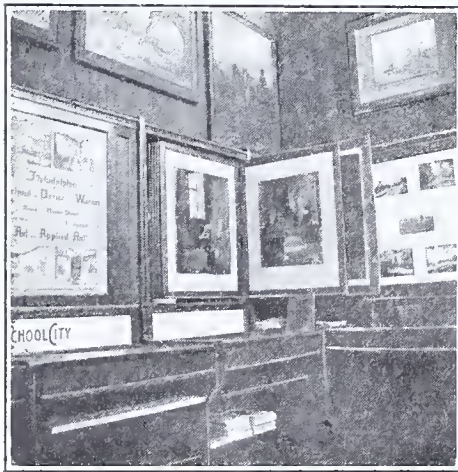
There were full and accurate papers in English,

PENNSYLVANIA AT THE WORLD'S FAIR.

German, French, Latin, history, mathematics, and the several sciences, all high school work. All the matter was well arranged, properly labeled, and completely tabulated so the visitors had no difficulty in looking up methods, years and subject, and grade of pupils. Full courses were shown in several of the high school subjects. In the drawing department the work was shown from the first grade. The course was exceedingly well graded and one of the richest in all lines that was shown from any city represented to the casual

visitor, while the educator saw in it the work of one of the foremost cities, as Scranton is educationally considered.

Steelton exhibited series of papers on arithmetic, language and penmanship from all the grades. The work represented regular school work. It showed excel-



CORNER IN EDUCATIONAL SECTION.

lent teaching and great care in the mechanics of the preparation, and in all, represented work of schools of high grades. The drawing from all the grades was of good quality. The arrangement of material

THE STATE EDUCATIONAL DISPLAY.

reflected much credit upon Superintendent McGinnes and his committee. A course of study accompanied the exhibit.

South Fork sent examination papers in all branches from the high school as written first by the pupils, good class work in German, Latin, and Geometry; also specimen papers from the class work in the grades; and the specimen writing from all the pupils in the schools; all making a good showing.

Sharon had a good line of drawing illustrating work in nature study, water colors, designing for oilcloth and cloth, and posing.

Tidioute prepared an exhibit in drawing and manual training, drawing from all grades. This was all of good quality, but the drawing in charcoal and the original designs for wall-paper, oilcloth and carpets were conspicuous among the best shown. The manual training exhibit came from all grades, from the paper cutting and folding of the lowest grades through the basketry from the middle grades to the bench work and lathe work in the high school. The work was uniformly of good quality.

Principal W. L. MacGowen of Warren prepared an exhibit that showed the full course of study and the varied training the pupils in Warren receive. The illustrated work, of excellent quality, showed

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in a great measure how the course leads up to industrial work and educates the hands and implants the taste for handicrafts and other phases of practical work. The papers showed a high standard of literary and scientific requirements. The exhibit included a display of material from the domestic science department with photographs of classes at work. Sewing and dressmaking are taught in all the schools. Articles made by the children were exhibited; work from the first seams made, to dresses elaborately finished, with photographs of pupils at work, and courses taught. Complete courses in raffia and reed work, as used in weaving, braiding, and basketry gave a great variety to the exhibit. The manual training display was full and of great excellence. It was noticeable that no matter what principle was involved, the problem when worked out took the tangible shape of some article of utility and artistic beauty. All in all the Warren exhibit in its variety, its excellence, and its arrangement and mounting was as good as the best.

West Chester had a large and varied exhibit. It served to show the variety, the methods, and the quality of the work done in all the grades, as well as the interest shown by the pupils in special, assigned outside exercises. There were many mounts of drawings.

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The mediums used were colored pencils, water colors, charcoal, pen and ink; the motifs, leaves, sprays, flowers fruits, and vegetables; geometrical forms; plaster casts, landscapes; selection from literature, illustrated designs for wall paper, tiling, stained glass windows. Mechanical and charcoal drawings and water color work came from the high school. Written work in English included sentence building, sentence development, memory gems in all grades, letters, advertisements, telegrams, news articles, development of the paragraph, editorials, descriptions, narratives, arguments, extended stories, outlines of classics read, work in English grammar.

In the sciences, there were photographs of ninety birds, nestlings, and nests; jars of specimens; about three hundred minerals, most of them found in locality of schools; note books; microscopic slides; drawings; and written class and test work. Work from all grades of regular and test lessons in nearly all the subjects of the course was accompanied by photographs of the buildings, interiors, with classes, rooms, and apparatus.

From the manual training classes, there were products from the sewing rooms, covering the entire course, books illustrating every form of sewing taught as well as patching, darning, and dress fitting suits,

PENNSYLVANIA AT THE WORLD'S FAIR.

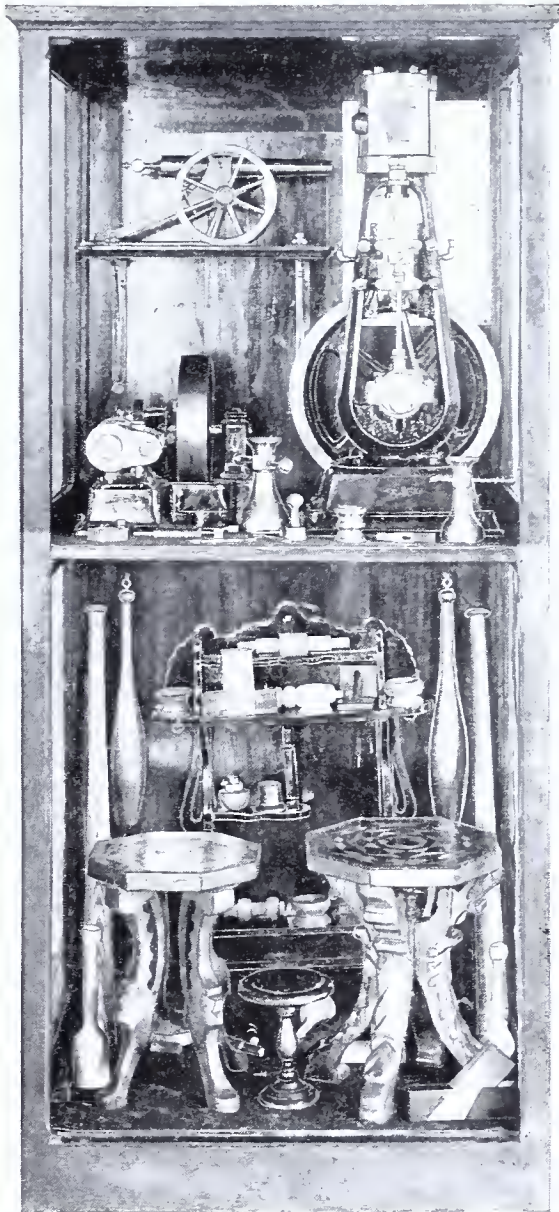
skirts and dresses. Work from all the grades, in paper weaving, paper cutting and pasting, raffia braiding and sewing, basketry, and wood working illustrated the course of study. Hand as an accompaniment to brain work is found to be useful not only in getting better academic training, but it is well fitted to develop the entire child through his activities. The pupils under the direction of the drawing supervisor, Mr. S. I. Kreemer, made a number of illustrative charts showing graphically important comparative statistics relative to Pennsylvania High Schools. These charts attracted much attention and received many compliments.

The Wilkes-Barre schools sent a very extended list of manual training products, nearly all of the pieces having a decided utilitarian value. The work ranged from the simplest piece made with a knife to difficult work that would be highly creditable if made by a skilled mechanic. All the work was carefully arranged and nicely mounted.

Williamsport displayed much work of good quality. In science the descriptive papers were well illustrated by drawings of the objects by the pupils. There were a number of student's herbariums consisting of about a hundred specimens of local plants, and note books fully and carefully prepared. Note books in mathe-

THE STATE EDUCATIONAL DISPLAY.

matics, showing work in mensuration, by means of illustrative drawings, exemplified practical way of making problems concrete. Many educators commented upon the work favorably. The volume of written arithmetic was of the best. The work in manual training included models in clay from the primary grades, and raffia work in many designs from the middle grades. The kindergarten display was varied and as good as the best anywhere displayed. The committee in charge at Williamsport originated many



SOLDIERS' ORPHANS' SCHOOL WORK.

PENNSYLVANIA AT THE WORLD'S FAIR.

designs and devices to make their very good work appear artistic and to the best advantage. Drawings from all the grades were greatly admired, the color work showed much originality in its arrangement of color and design. The work from Williamsport suggested to every visitor a good course of study, thorough teaching, with attention to details, and close and careful supervision. The committee appointed by Superintendent Lose did everything to make their exhibit a worthy one. The display at St. Louis showed that they succeeded.

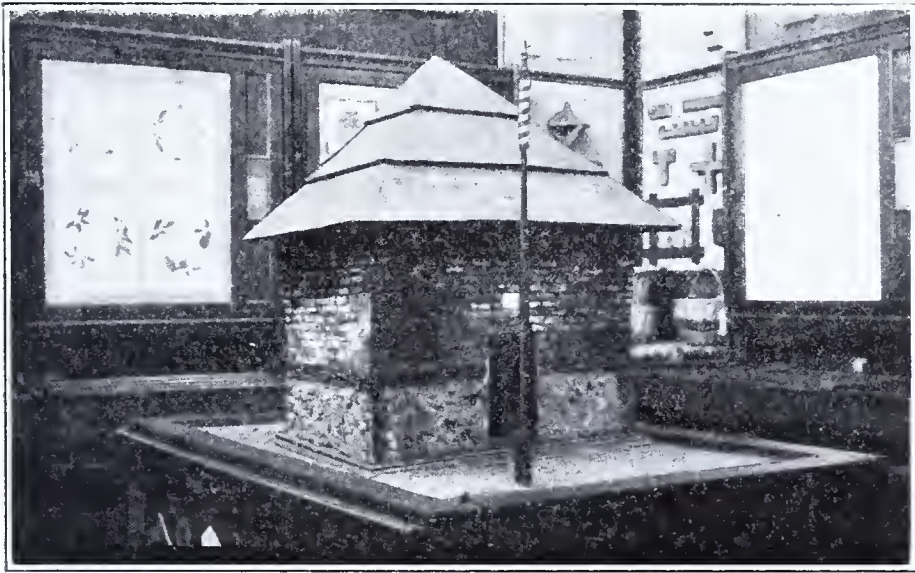
York sent cards, reports, and administration papers to help in the organization of schools; photographs of the prominent school buildings and interiors, with classes at work, and course of study.

Reports and courses of study were received from the following named places: Allentown, Altoona, Beaver, Carbondale, Butler, Hazleton, Lebanon, Lock Haven, McKeesport, Waynesboro, Minersville, Media, New Brighton, Pittsburg, Sunbury, Titusville, and Wilkinsburg. All were placed in order in the exhibit.

The thirteen Normal Schools, with the Department of Public Instruction, occupied an alcove all to themselves. A study of the exhibit showed the visitor the great work that is being done in training teachers for the public schools; and many a citizen of the State

THE STATE EDUCATIONAL DISPLAY.

realized for the first time, as he examined the exhibits from these schools, the advanced methods pursued, the thoroughness of the teaching, the amount of work done, and the harmony of the system with the work in the public schools. The space to display the amount



MODEL OF THE OLD BLOCK HOUSE, PITTSBURG.

of excellent material was so small that to see its extent, the visitor was compelled to go through the cabinets and portfolios.

Bloomsburg prepared work in drawing in pencil, ink, water colors, and some excellent designing in colors. There was much variety and generally good work. The type lessons by members of the senior class with

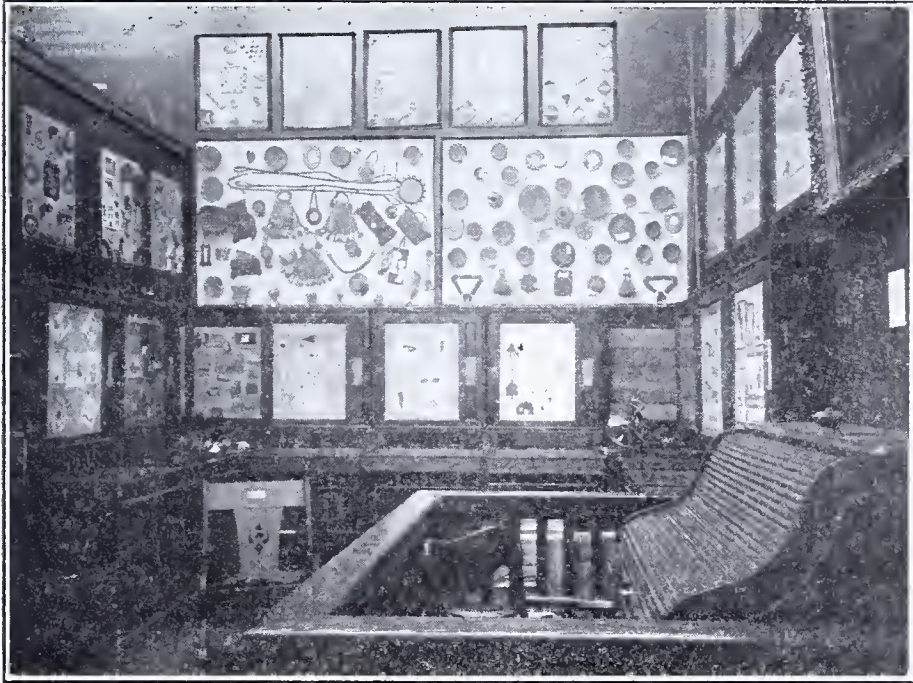
PENNSYLVANIA AT THE WORLD'S FAIR.

development maps showed excellent method with first class results. The work from the model school on all subjects was much admired. The bead work and drawing were exceptionally fine. There were a large number of photographs of the grounds, buildings, class rooms, students' rooms, classes, recitations in progress, Professor Bakeless, compiled and tabulated charts on State Normal School Library Statistics of great value to the student of training class problems. There was a set of publications by the faculty and former students.

California had a very good exhibit of first class work. Raffia weaving, color work, sewing, and knife work made a most attractive display from the little people in the model school. Psychological charts showing individual study of Seniors on classes and on single pupils, made a valuable collection of data. Charts containing development maps of the weather, work adapted to school use; papers on Life History of a Toad, Mosquito, etc., showing methods of presenting these topics to classes formed a part of this exhibit. There were also type studies in geography and physics, showing much research and care, and making good material for method in public school teaching. The photographs were of the buildings and the grounds. California also sent publications of the faculty and former students.

THE STATE EDUCATIONAL DISPLAY.

Clarion exhibited photographs of school buildings and grounds, and publications of the faculty and students of the school.



OFFICE IN PENNSYLVANIA EDUCATIONAL SECTION.

East Stroudsburg prepared and exhibited written work from students in nearly all subjects of the course, consisting of written lessons, tests, and examinations; charts in zoology, showing mounted specimens, in physiology, and in botany, the science work being of excellent quality well arranged and accurately described. There were also these in school manage-

PENNSYLVANIA AT THE WORLD'S FAIR.

ment and methods. The geography work was in type work and well worth careful study. The photographs were of the school buildings and grounds. Edinboro sent photographs of grounds and buildings.

Indiana prepared a volume of penmanship, showing methods and means to accomplish the remarkable results; students' note books, illustrating methods in science work, language and history; specimen written work in all branches taught in the model school; manual training methods and products in raffia, reed, and wood illustrating the full course of study. This work was of the best of its kind. Instruction sheet giving methods of work in training and practice classes in the model school were of much value. The model school's display was very interesting. There were photographs of buildings and grounds, and publication of the faculty and former students.

In the Kutztown exhibit there were photographs of the building and grounds, class rooms, interiors, and students' rooms; bound volumes, showing some very good written work in several branches of study; chart showing methods used in the training classes; excellent work in physiology and psychology, much of it being done in the class room by students; good work in drawing, artistically mounted, the mechani-

THE STATE EDUCATIONAL DISPLAY.

cal drawing being of very good quality. There were also a number of text books by the faculty.

Lock Haven sent photographs of the buildings and grounds as well as class rooms and approaches.

Mansfield prepared a series of photographs handsomely mounted and showing the buildings, grounds, class rooms, and students' rooms, also science note books. Among the publications of the faculty, a large number of music books was conspicuous.

Millersville was represented by much excellent work from the drawing department, composed of landscapes in black and white, and gray; posters in ink and water colors; pose sketches and groups of still life in charcoal and in color; surface designs. In penmanship, there were sent a set of papers with original and final specimens, showing improvement in students' work in writing in thirteen weeks' practice; engrossed alphabets with pen sketches as a center the original designs in red and black made with pure muscular movement. The text books published by members of the present and former faculties composed an extensive library, covering nearly all subjects of academic study. The lists included many of the popular and most extensively used texts in the country.

In the Shippensburg exhibit were series of photographs of the buildings, interiors, chapel, dormitories,

PENNSYLVANIA AT THE WORLD'S FAIR.

and classes; an illustration of the full course in drawing, covering work from the first lesson to the graduating student completing the course. It included work with pencil, color, charcoal, and water color; and showed geometric and free-hand, posing and composition. It was a display of good work.

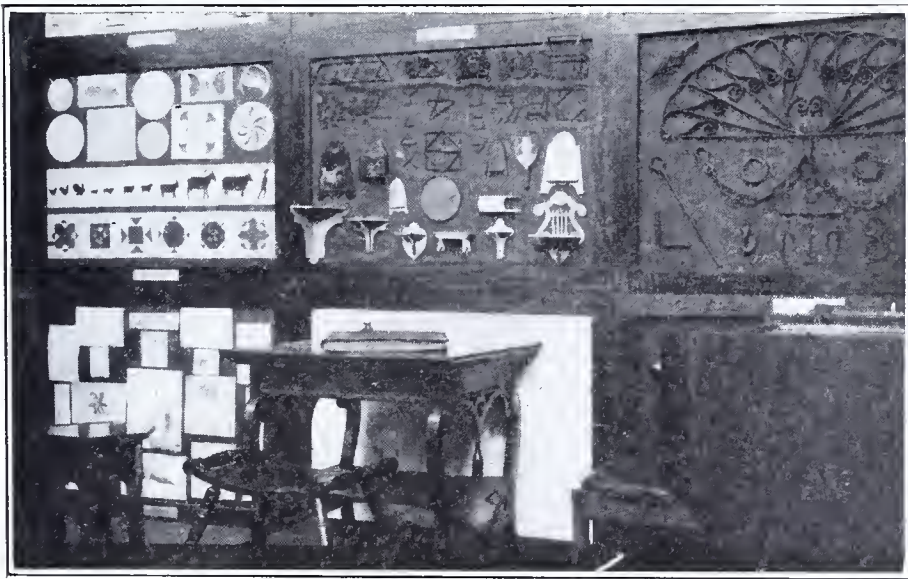
The Slippery Rock School excelled in its work in weaving and paper folding, paper cutting, and basketry, and in its variety of papier mache maps and charts. The knife work was varied and good. The class work of the students was well shown and illustrated. The outline work for nature study and the results of the class work in this branch showed very satisfactory results. The nature study charts and blue prints were very good and full of suggestions, running out lines not usually found in school courses. The color work scheme was also very suggestive. The kindergarten charts were among the best in the building. There were good photographs of the buildings and grounds, also the publications of the faculty and former students.

West Chester exhibited photographs of all buildings, athletic field, skating park, also interiors, showing library, reading rooms, dining room, chapel, reception rooms, classes in nearly all departments, seniors in model school observing and teaching, model school

THE STATE EDUCATIONAL DISPLAY.

pupils at recess, basketry, and calisthenics. There were charts of methods of using the library, showing bulletins, reference lists; senior classes, and methods of leading them were shown by photograph and charts.

They exhibited a large number of charts in biology and physics, showing methods of teaching, the use of the apparatus, students' work charted and written, completed work bound. There were cases of insects,



ALLEGHENY SCHOOL EXHIBIT.

minerals microscopic slides, and packages of herbarium specimens, all shown as illustrative of the kind of work done as preparatory to the teaching of these subjects

PENNSYLVANIA AT THE WORLD'S FAIR.

in the schools. The drawing department showed all lines of work done by the pupils. The history note books and charts showed specimen lessons as well as reference lists for particular topics to be worked out by pupils. In reading, there were reading programs, special day programs as used for anniversaries, (Washington's Birthday), with references, showing the actual work prepared for the several special occasions. In Latin, methods of teaching were illustrated by the historical and geographical aids used, and the means taken to acquire proficiency in learning the paradigms and constructions, and regular lessons showing the work done in consequence of these aids to efficient teaching. In the manual training department, there were samples of chairs, tabourets, tables, inlaying, carving, and pattern making. In addition, there were many text books published by the faculty.

The Department of Public Instruction added much to the success of the state exhibit. It loaned eight large framed portraits of State Superintendents of Public Schools and men prominent in the passage of the Common School law. The entire file of the Pennsylvania School Journal, covering the history of prominent features of education in the State for the last fifty years. The State Superintendent is the editor of the

THE STATE EDUCATIONAL DISPLAY.

Journal. These Journals as well as the full set of Reports of the Common Schools of Pennsylvania, forty-eight volumes, were handsomely bound for the exhibition.

In addition, State Superintendent Schaeffer, directed the preparation of charts in tabulated form showing the growth of the public school system in the last twenty years in teachers, pupils, high schools, high school attendance, cost of building, maintenance, salaries of men and women, number of college graduates teaching, taxes, appropriations, and many other items of interest to teachers and students of education. The others formed an epitome of Pennsylvania educational history that is compact in form and invaluable as reference. There were altogether fifty charts of most important statistics so arranged that a glance gave to a visitor information that a day's reading could scarcely supply.

Among higher institutions of learning, Haverford College had photographs of the college buildings and grounds, also specimens of iron work made in the machine shop. Lehigh University sent photographs of buildings, grounds, and equipments. There were diagrams showing attendance and growth from the foundation of the University, also recent publications of the University. The University of Pennsylvania

PENNSYLVANIA AT THE WORLD'S FAIR.

donated a fine plaster cast of the first Provost of the University, Dr. William Smith.

Brockie and Hastings, Architects, contributed drawings and specifications for a model rural school house planned to accommodate forty pupils. There were three drawings showing the front, side, and rear elevations, transverse section, first floor, and basement plan. Specifications outlined the construction of the building and indicated the material to be used.

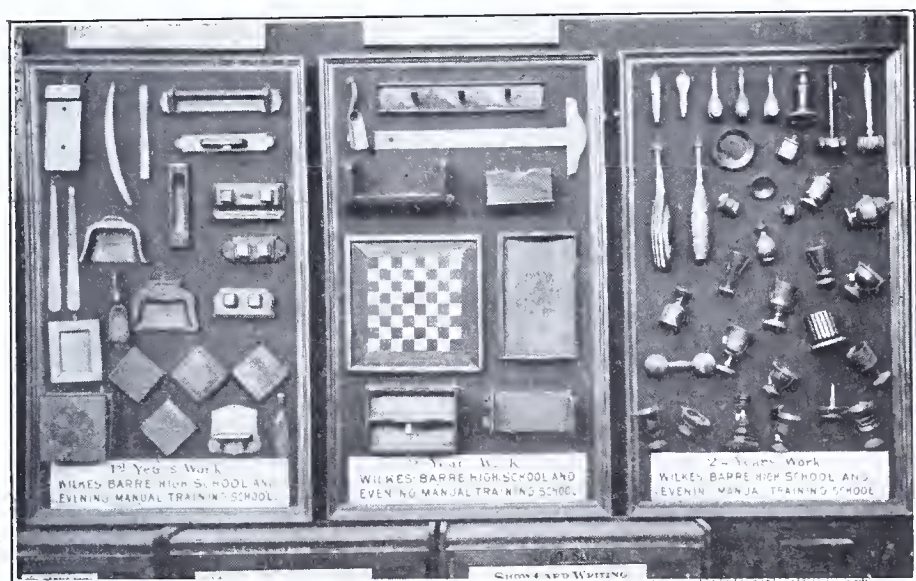
Mrs. J. N. Choate contributed a valuable collection of Indian photographs, taken of Indian chiefs, oftentimes accompanied by their wives, in their tribal costume, and their children when first brought to the Indian Training school at Carlisle. The pupils were taken again, in the dress of civilization, when leaving school. It is a collection of photographs full of interest to any one, and exceedingly valuable to the student of history.

Carlisle Indian Industrial School donated to the exhibition, through its superintendent, a collection of photographs of the students at work at the several manual classes in the institution, showing the variety in the training of the wards of the nation; also groups of the students belonging to the several graduating classes, the base ball club, and the foot ball team.

The Cornplanter Indian School in Warren County

THE STATE EDUCATIONAL DISPLAY.

made a very creditable exhibit of its work. This is the only school on an Indian Reservation in Pennsyl-



WILKESBARRE SCHOOL EXHIBIT.

vania. It is taught by a teacher thoroughly interested in the welfare of her pupils. Her work consisted of class work by all the pupils in writing and drawing; articles made by the boys out of soft wood with knives; and sewing by the girls, showing the various steps in the course. The exhibit gave the visitor a fair notion of the kind of work done in Pennsylvania's Public Indian School.

Spring Garden Institute, through its president, sent a strong exhibit. There were drawings show-

PENNSYLVANIA AT THE WORLD'S FAIR.

ing progressive work of pupils in free-hand, mechanical, and architectural drawing classes; original designs for wall papers, carpets, and oilcloths, still life paintings in oil and water color. The work in wood and metal showed progressive exercises of pupils in the mechanical handiwork classes. There were papers and calculations on electrical problems by pupils in the electrical classes. A unique feature of the exhibit were three machines built by the pupils from their own drawing for the United States exhibit of American Inventions, each being an exact reproduction of the original machine in the possession of the Franklin Institute: Franklin Electrical Machine No. 1 the original having belonged to Benjamin Franklin; Franklin Electrical Machine No. 2 the original having belonged to Benjamin Franklin: Oliver Evans Steam Engine, the original having been one of the earliest, if not the earliest, steam engines built in America. All of these machines are in working order and are fairly effective; the originals are not in condition to be tested.

The Hamilton Library Association of Carlisle, through its secretary Prof. Charles F. Himes, exhibited a series of photographs of old and new school buildings of Cumberland County. With the photographs of the oldest building is a written description of the

THE STATE EDUCATIONAL DISPLAY.

school district, and so far as possible, photographs accompanied the descriptive articles. A complete school history of the county was given with sufficient narrative to make the large volume of rare value and intense interest to all that know the region of Cumberland County. Mr. Himes has been instrumental in making this valuable collection.

The Soldiers' Orphans' Industrial Schools were well represented. Chester Springs and Jumonville and a series of photographs of the buildings, grounds, and shops with classes in recitation and at play. Scotland made one of the most interesting and attractive exhibits at the exposition. The photographs were mounted and placed near the north entrance. The handsome glass case containing the manual training products was made entirely by the boys of the school under the supervision of Prof. Stewart. From the machine shops came a 3x4 vertical engine, a marvel of beauty and in running order; a 2x2½ horizontal automatic engine also in working order; a breech loading cannon, 45 calibre, perfectly made; small screw jacks; cluster of cannon balls; samples of chasing, double right and double left threads; samples of knurling; small steel wrenches; small steel hammers; small cut gear wheel; paper weights. From the wood department were exhibited veneered tabourets, inlaid

PENNSYLVANIA AT THE WORLD'S FAIR.

Indian clubs, base ball bats, joints of walnut and oak, wall cabinets, dumb bells, turned balusters, walnut stand, samples of wood turning, patterns in many designs for casting.

Miss Emily Sartain, Principal of the Philadelphia School of Design for Women,



MISS EMILY SARTAIN

School of Design for Women, prepared one of the best exhibits from schools of its class. In the Fine Art Department were original Compositions "The Poet and the Source," "Pastoral," "A Street Vendor," "Six Arrangements for Landscapes," "A City Scene," Four Mural Decorations in the Pennsylvania Building for a Philadelphia Public School, "The Early

Age of Music," "The Early Age of Diplomacy," "The Early Age of Astronomy" and "The Early Age of Metallurgy," Portraits from life in oil and water color. Full-length life in oil. Flowers and still life in oil and water color. Elementary Studies in charcoal, wash, and lead pencil. In the Designing Department were Technical Designs, original, for woven and printed fabrics; Textiles with analysis of weaves, Wall-papers, drapery silks, oilcloths; in general Designing, initial

THE STATE EDUCATIONAL DISPLAY.

letters, labels, book-covers. Progressive studies in Theoretic Design. Exercises in Geometric Construction. Historic Ornament with arrangements to fill prescribed spaces. Studies from nature in pencil and water color, with limited number of tones. Free-hand brush work from nature. Conventionalization of plants and flowers from nature with diverse treatments suggested by different historic styles, and renderings suited to various requirements of manufacture.



THE PORTRAIT OF THADDEUS STEVENS,

The Pennsylvania Museum and School of Industrial Art prepared and installed an excellent exhibit, through its principal, Leslie W. Miller.

From the School of Applied Art came mounted

PENNSYLVANIA AT THE WORLD'S FAIR.

photographs and a large number of original drawings, architectural drawings, decorated signs, hand made drapery, bound books, metal panels, carved wood panels, models of Egyptian and Byzantine jewel boxes and door knockers, baskets.

From the Textile School, a large number of photographs and samples of pupils' work showing in some detail the means and processes through which the material goes before the pupils make it the finished product that is so much admired. There was a showcase filled with varied samples of yarn and stretchers.

On June twenty-eighth the active members of the National Educational Association from Pennsylvania, who were in attendance at the meeting in St. Louis, met in the Pennsylvania Building, and passed a resolution favoring the establishment at Harrisburg of a permanent school exhibit. In response to letters addressed to the exhibitors in the educational department it was found that nearly all the districts represented were willing to allow their work to go to Harrisburg. In consequence most of the material was shipped directly from St. Louis to Harrisburg to form the nucleus of a permanent school exhibit that will be a means of furthering the cause of education.

THE PHILADELPHIA SCHOOLS EXHIBIT.

AN UNSURPASSED DISPLAY IN ALL BRANCHES OF EDUCATIONAL WORK--THE NORMAL SCHOOL FOR GIRLS AND ITS SYSTEM--WHAT WAS ILLUSTRATED BY THE CENTRAL HIGH SCHOOL EXHIBIT--DEVELOPMENT OF THE PRINCIPLES OF INSTRUCTION IN THE THREE YEARS' COURSE OF THE MANUAL TRAINING SCHOOLS--COMPLETE AND ILLUMINATING EXHIBIT OF THE ELEMENTARY SCHOOLS--THE SEWING WORK "THE BEST OF ITS KIND IN THE UNITED STATES"--THE KINDERGARTEN DISPLAY--METHODS OF INSTRUCTION IN THE PUBLIC INDUSTRIAL SCHOOL.

THE work of the Public Schools of Philadelphia, displayed at the St. Louis Exposition, was not excelled by that of any other city exhibit. It was cramped for room, as Pennsylvania exhibits in all departments were, but the best possible use was made of the space available, and excellent judgment shown in the installation of the material of the exhibit. The Councils of Philadelphia made an appropriation of \$4000 to cover the cost of preparation, and the result has been most satisfactory.

Dr. Edward Brooks, Superintendent of the Philadelphia Public Schools, began early to make preparations for the best exhibit the schools could arrange. The Committees appointed did their work energetically and well. The display was most attractive in

PENNSYLVANIA AT THE WORLD'S FAIR.

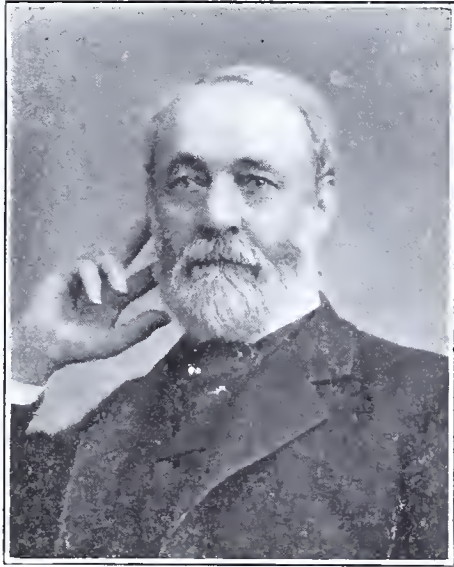
its arrangement and fair in the apportionment of space to the different schools. Assistant Superintendents Singer and Garber, and Professor Odenatt installed all the Philadelphia work, and the duty was performed with a complete knowledge of the ends to be accomplished. Throughout the Exposition Miss Josephine A. Murphy, one of the most competent and intelligent of the City teachers, was in charge of the exhibit, and it was due to her enthusiastic interest and familiarity with special features and the general plan, that it was made a means of instruction and usefulness to many thousands of visitors. In order that the description of the display exhibited might be complete, accurate and satisfactory to the different schools represented, the Superintendent requested each school to prepare a description of its own work. These descriptions follow, that of the Elementary Schools exhibit having been prepared by the Superintendent himself, and nearly all written while the Exposition was in progress.

In the exhibit of the Philadelphia Normal School, for Girls, of which J. Monroe Willard, Litt. D, is principal every department of work is represented. A careful study of the sixty-four pages of its leaf catalogue, and of its bound volumes, physical apparatus, and manual work, will give a good idea not only of the aim of the

THE PHILADELPHIA SCHOOLS EXHIBIT.

school, but also of the educational tasks accomplished. Each department tells its own story by picture and text: but besides this by a well-devised scheme of graphics, the number of hours devoted to each subject, the cost and running expenses of the school, and other valuable information may be obtained at a glance.

Few Normal Schools contain such finely equipped laboratories, and these, together with the large and well arranged classrooms, are shown by many photographs. In the scientific department photographs also show various details of the work. An exceedingly attractive exhibit of this nature is that of the Department of Biology and Geography, while those of the Departments of Physics and Chemistry and of Psychology are very suggestive. Photographs also show the Gymnasium, with the apparatus, and give us delightful pictures of the games played by the children of the Kindergarten Department. In the same way the manual



DR. EDWARD BROOKS.

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work of the school is exhibited, and some interesting pictures show how the library is made to help in the general training of the student. The progress made by the students in Drawing is shown by fine specimens of their work in charcoal, water color, colored chalk and lead pencil.

All departments present a carefully arranged course of study; in some departments, notably Literature, this, from the nature of the case, is the only exhibit. In many cases, the course of study is made clear by notebooks, papers, maps, and other illustrative material, the work of the students.

The difficult and delicate task of the Normal School teacher, not only in widening the mental and moral horizon of the students, but also in criticising and encouraging their efforts to help others, cannot readily be shown, and therefore the exhibit of the Department of Methods is small in proportion to the importance of the work. Some valuable illustrative material, however, may be seen in the teaching of History. Anyone who carefully examines the entire exhibit will discover the constant aim of the teachers in all departments to throw the students, as much as possible, on their resources, to force them to solve by their own powers and in their own way the problems presented, and thus to afford them the best

THE PHILADELPHIA SCHOOLS EXHIBIT.

possible preparation for their coming responsibilities as teachers.

The papers written by the pupils of the Department of Observation and Practice form an important part of the Normal School exhibit, as they reveal not only the mental powers of the children, but also the kind of work done in the school in which the student teacher is trained.

The exhibit of the Central High School of Philadelphia, Robert Ellis Thompson, A. M., S. T. D., President. is designed to give to those interested in public education a fairly satisfactory conception of the plant itself, its history, and development, its methods and of the part it plays in the civic, economic and literary life of the city of whose educational system it forms the apex. The plant itself, the building and equipment, confessedly the largest and most complete in the United States, is illustrated by a series of photographs exhibiting every detail, exterior and interior, class rooms, laboratories and the magnificently equipped observatory.

The various departmental exhibits show well the work in the several lines of instruction which they represent. Some of the departments of any school are practically unable adequately to present their work to the public; such are those of English, of History,

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of Language; and no attempt is made by these departments to exhibit the scant material, consisting of ex-



MISS JOSEPHINE A. MURPHY.

amination papers and similar matter, which is usually seen. The Department of Physical Science, honored in the past by the names of Alexander Dallas Bache, Elihu Thompson, and Edwin J. Houston, exhibits specimens of laboratory work, the note books being those actually handed in by the students. A study of these will reveal the minuteness and thor-

oughness of the instruction, and the habit of accurate observation.

The Department of Drawing is regarded not merely as a means of securing manual dexterity and accuracy of eye, but is regarded as one of the culture courses of the school. Its exhibit is designed to illustrate this phase of the work.

The Department of Commerce, in no sense a Business College, aims to give, along with the technical business instruction, thorough training in language, mathematics, and the broader problems of commerce and finance. The results of this instruction are illustrated by the

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volumes of graduating theses, treating many of the commercial, financial, and economic questions of the day with a maturity of method and clearness of style unusual in school boys.

The city of Philadelphia aims to train up its own teachers for its own work. and this is admirably illustrated by the School of Pedagogy, where young men are trained for the profession they have chosen, and practice it upon classes under the eye of the Departmental Faculty.

As a school is to be judged only by its results and effects upon the community, the intellectual activities and achievements of its body of Alumni are represented in some degree by the large library of works whose authors have been graduated from the school.

It is enough to say that some of the greatest names in the literature, and in the political, scientific and professional life of our entire country are there represented. We cannot believe the exhibit gives a complete picture of the school, its life and its work; but it will at least afford to the public a glimpse at a great and useful institution.

The Central Manual Training School, William A. Sayre, A. M., Principal, and the North East Manual Training School, Dr. Andrew J. Morrison, Principal, united in the exhibit of Manual Work. In the manual

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work of the exhibit, which is a distinctive feature of these schools the several principles are illustrated. Each exercise involves a mechanical principle, and the chief object of the instruction is the development of this principle, rather than a finished piece of work. Each exercise has value only as it has rendered educational service during its construction. In the changing conditions of the project in hand during its construction, there is a constant necessity for creating new means to meet new requirements, and the directive skill and processes thus evolved make manual training rise to the level of scientific studies as a means of intellectual development.

Other values of a specific nature are accuracy of measurement, precision of adjustment, delicacy of manipulation of tools, and must be taken into account in estimating the educational value of manual work. All articles made are required to be in form and dimensions, as given in a working drawing. The aim is to teach the pupil to express his thought in a concrete form with the least waste of time and material and in accordance with the most approved methods. Principles involved in the exercises are explained, and the elementary stages of the work, at the bench, the forge, or the machine, are gone through with by the instructors. Free-hand black-board sketches are lib-

THE PHILADELPHIA SCHOOLS EXHIBIT.

erally used. Mechanical shapes and units are designed to familiarize the student with types and methods of construction.

The first year in the wood-working department the student begins with the cutting of rough stock, which gives him practice in sawing. After this preliminary work, come planing, squaring, gauging. Instruction in plain wood-turning is also given. During the third term, there follows instruction in artistic wood-turning. In the metal department, the course for freshman class work is begun with moulding and casting of various forms and with core making. Then follows a course in tin-smithing, consisting of soldering, seaming, flanging, wiring, and forming of projects into plane, conical, and cylindrical surfaces. During the second term, elementary lessons in vise work are given, consisting of chipping and filing of cast iron into various forms.



DR. E. A. SINGER.

The second year in the wood-working department, the instruction is in advanced joinery, pattern-making, wood-turning and carving. In joinery the principles previously learned are now applied to the making of

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some useful articles. These may be carved or otherwise ornamented. In the application of and the putting together the mechanical units previously made, the student realizes he is making something, and his interest in the work is quite manifest. Forging differs in one essential feature from previous work in cold metals, with heated iron or steel quick thought and decision are required. In this branch the various operations of drawing out, bending, shaping, welding, and tempering are taught. The year's work closes with ornamental iron work from designs by the students.

The third year in the Mechanical Engineering Department, instruction in advanced vise work is given; also in elementary machine tool work, such as plane cylindrical and taper turning, external and internal chuck work, the making and fitting together of machine parts, drilling, tapping, and pipe cutting. The making and assembling of engine parts, pumps, dynamos, physical apparatus and other projects best calculated to illustrate the most important principles of modern machinery. By illustrated lectures the many type of engines and boilers are explained.

The exhibit of the Elementary Schools consisted of papers on Language, Arithmetic, Geography, History, and Civics, Physiology and Hygiene, work in Drawing, Sewing, and in the Kindergartens, .

THE PHILADELPHIA SCHOOLS EXHIBIT.

1. The papers on Language showed the successful application of the idea that, in the correlation of studies, Language should be made the central, and that history and literature on the one hand, and nature study on the other hand, should be grouped around this centre. The work is characterized by another educational maxim placed prominently on our exhibit,—“Language is the Instrument of thought and the Medium of Expression.” The influence of those two principles was manifest in the Language work of our exhibit. Many of the papers were written upon current topics, showing that the children of the public schools are kept informed upon the doings of the day as well as upon the history of the past. The illustrative work, which is a prominent feature in the schools of Philadelphia, added interest and attractiveness to the papers. The exhibit of Language was prepared under the direction of Dr. Edger A. Singer, Assistant Superintendent.

2. The exhibit in Arithmetic was characterized, first, by the fact that the much lauded Grube System had been discarded for a more natural and logical system called the “Normal System:” and, second, by the prevalence of that analytic method of thought and operation which has done so much to revolutionize instruction in Arithmetic in this country. The work

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ranged from the Elementary process of the first grade to Mensuration and the elements of Algebra in the eighth grade. The business applications of Arithmetic were made prominent in the exercises. The papers were neat, the solutions simple and in good form, and most of them showed independence of



DR. JOHN P. GARBER.

thought and an intelligent comprehension of the subject. The exhibit in Arithmetic was prepared under the direction of Dr. William C. Jacobs, Assistant Superintendent.

3. The papers in Geography showed the co-ordination of political and physical geography in the treatment of each individual country or state, and the influence of physical conditions on plant and animal life and upon the occupations, the characteristics and the welfare of mankind. In case of the United States, these influences were correlated with the history of the country, especially in respect to the State of Pennsylvania. The exercises in Map Drawing indicated its purpose to aid the understanding and memory of the pupil by visualizing the various subjects that can be represented

THE PHILADELPHIA SCHOOLS EXHIBIT.

by a picture or an outline. The maps were mainly in free hand, no artistically drawn maps being required in the Course of Study. The exhibit in Geography was prepared under the direction of Dr. John P. Garber, Assistant Superintendent.

4. The work in Physiology and Hygiene represented the general character of class room work in the Philadelphia Schools. The work includes, first—a description of the body as a whole; second—the bony frame-work; third—the muscular system; fourth—the digestive system; fifth—the blood and its circulation; sixth—the lungs and respiration; seventh—the skin and its functions; eighth—the nervous system and the special senses. Such subjects as the eye, the heart, the lungs, were illustrated by drawings or diagrams, some of which were artistically done. The laws of health were especially emphasized in connection with every department of the subject. The exhibit in Physiology was prepared under the direction of C. Henry Kain, A. M. Assistant Superintendent.

5. The papers on History indicate the methods and purpose of teaching this branch in the public schools. Those in the primary grades relate to some prominent event in our country's history or to the deeds of its great men. The main object of the teaching, in these as well as in the other grades, is to cultivate a love

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for the study and a desire to learn more of our country's history rather than to fix in the memory a certain amount of facts or dates. Biography is made the basis of historical study in these grades. In the grammar grades, more attention is given to events and those larger movements that indicate the progress of the nation. The pupil finds his material in the text book and is expected to study the subject more in detail. The papers in this grade relate to the establishment of the Constitution, the administrations of the several Presidents and the national policies adopted by each, the Civil War, the Tariff, etc. as required in the Course of Study. Much of this work is illustrated by Maps and Pictures. The object kept prominent in the work in History of the Public Schools of Philadelphia is the creation of a patriotic spirit, the development of the love of country and of the higher ideals of life by the study of the deeds of patriots and statesmen. This part of the exhibit was prepared under the direction of Miss Lydia A. Kirby, Assistant Superintendent.

6. The Sewing exhibit of the pupils, placed in a large glass case at the entrance to the Philadelphia section, consisted of specimens of plain and fancy sewing and dressmaking by the pupils of the Elementary Schools ranging from eight to fourteen years. The exhibit included lace handkerchiefs, fancy underwear,

THE PHILADELPHIA SCHOOLS EXHIBIT.

beautiful and dainty dresses, showing the handiwork of the little maids of the Quaker City. This work was so artistic that the lady in charge of the exhibit reports "that many expressions of incredulity were heard, and had to be met with the testimony of one who actually saw the work in progress of preparation." "The Sewing exhibit," she adds, "was fully conceded to be the best of its kind in the United States." This exhibit was prepared under the direction of Miss Lydia A. Kirby, Assistant Superintendent.



PROF. W. H. ODENATT.

7. The exhibit in Drawing consisted of eighty mounts, containing an average of ten drawings to each mount, part of which were displayed openly, the remainder being contained in two wall cabinets. In addition, there were eight bound volumes containing over thirteen hundred drawings. The drawings exhibited were selected from the work of all grades, and consisted of drawings of leaves, sprays, plants, common objects, executed in colored chalks and crayons in the lowest grades, and in pen-

PENNSYLVANIA AT THE WORLD'S FAIR.

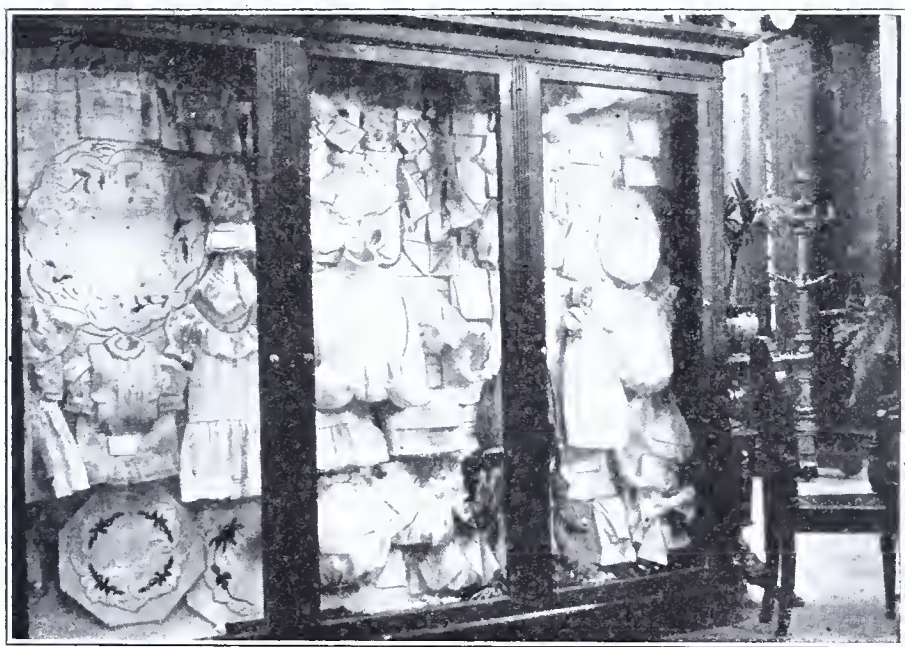
cil, pen and ink, and water colors in the highest grades.

Groups of common objects were shown from the third grade up, and more complex groups in still life from the higher grades. Drawings of the posed figure, in mass color in the lower grades, and in pen and ink and in water colors from the higher grades were a feature of the exhibit. Landscape drawing, chiefly in imaginative treatment, in colors or ink wash appeared in every grade. Landscapes and plant forms decoratively treated in flat, poster style for programs, and announcements, illustrated an interesting application of this study. The industrial side of drawing was illustrated in many bold designs in ink and color for floor cloths, tiles, wall paper, iron work, stained glass windows. On the constructive side were exhibited drawings to scale of cabinets, book cases, and similar articles. The exhibit in this subject was prepared under the direction of Mr. William A. Mason, Director of Drawing.

The Kindergarten exhibit was intended to represent the advancement of the kindergarten idea up to the present time. It consisted of work of children in Public Kindergartens; a sequence of a year's work as used in the program authorized by the Director of Kindergartens; and a series of papers explaining the princi-

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ples and methods of Troebel's philosophy as applied in the gifts, accompanied by drawings showing their application in the practical work with the children. In detail, it represented the mathematical analysis of the gift work in sewing, and original expressions



PHILADELPHIA SCHOOLS, SEWING WORK.

of the children on this basis; original work in weaving, sequences in paper-folding, paper-cutting, original illustrations of the kindergarten stories in drawing, and color work from models with brush and pencil.

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A typical program of a month's work in the kindergarten contained an outline of a morning talk, games, gift, and occupation exercises accompanied with drawings illustrating the details. The advantage of such a program is shown here to prove that the work can be unified by this plan, and opportunity offered for comparison for determining results. The object of the exhibit was not to make an effective display, but to show actual class work accomplished by children of the Public Kindergartens. This part of the exhibit was prepared under the direction of Anna W. Williams, Director of Kindergartens.

The exhibit at St. Louis of the Public Industrial Art School of which J. Liberty Tadd is Director, consisted of 1. Drawings and Designs in Monochrome and colors, water color sketches and charcoal drawings. 2. Clay models. Conventional forms and designs, nature forms in low relief and in the round. 3. Wood Carvings. 4. Photographs of children at work in the various class rooms.

Total number of pupils enrolled for the Fall term 1903, was one thousand two hundred forty-three. The pupils of the school are drawn from the fifth to the eighth year of the public schools and attend one session of two hours each week in the afternoon. As the result of many years of careful work and observation,

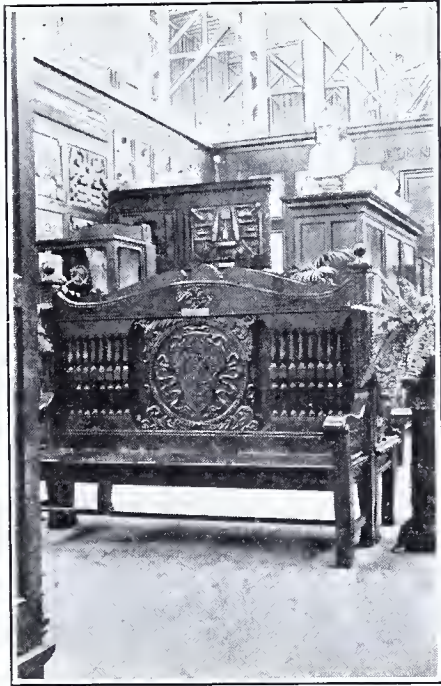
THE PHILADELPHIA SCHOOLS EXHIBIT.

certain things have been fixed upon as fundamental in real art and manual training, such as drawing, designing, clay modeling, and wood-carving. In the working out of the application of these fundamentals, certain features, radically characteristic of the system, have been evolved such as systematic sequence of classes, correlation of subjects, memory work, and nature study. The work may be classified as follows:

1. In the practical development of the entire organism,—the eyes, the hands, and the intelligence—by the acquisition of 'conscious control, followed by automatic control.

2. In the use of the powerful formative, exercises at certain periods for the purpose of gaining facility, balance, proportion, accuracy, a knowledge of magnitude, a sense of beauty, firmness and grace.

3. Exercises in different mediums, wood and clay,



MANUAL TRAINING SCHOOL WORK.

PENNSYLVANIA AT THE WORLD'S FAIR.

for acquiring dexterity and skill in shaping various concepts.

4. Exercises for acquiring accurate and permanent organic memories of environment (a) from nature, at periods when expressions are most vivid, from animals, flowers, insects, shells, (b) from art works and ornament of the best periods, and in creative designing in various materials.

The Exhibit of the James Forten Elementary Manual Training School of which Miss Hannah A. Fox is Principal consisted mainly of manual work, which is the distinctive feature of that school. The color drawings from such objects as flowers, fruits, and vegetables afford a field for the cultivation of the powers of observation, for the training of the hand and eye, and for the development of the taste of the pupil in respect to symmetry of form and harmony of colors.

The exhibit of wood-work follows the regular course of instruction in sloyd, together with the making of toys by the younger pupils. and useful articles by the older ones. This work gives training to the muscles while they are most supple, and to the eye when it is keenest. A piece of work planned from beginning to end, and executed by efforts following one another in orderly sequence, involving also judgment in the selection of the material used, and economy and ac-

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curacy in the disposal of it; give most valuable training to the judgment of the pupil. All of these exercises cultivate an appreciation of the worthiness of handiwork, and foster a spirit that tends to make successful artisans of the children of the lower classes, and thus open to them these avenues of higher mechanical and industrial achievement, for which our age is distinguished.



PROF. LOUIS E. REBER
DIRECTOR OF THE MINING EXHIBIT

MINES AND METALLURGY.

THE PENNSYLVANIA EXHIBIT IN THIS DEPARTMENT "THE BEST MOST COMPLETE AND MOST ATTRACTIVE INSTALLATION" AT THE EXPOSITION--AWARDED A SPECIAL PRIZE AS SUCH--PARTICULARLY STRONG ANTHRACITE DISPLAY--MODELS, RELIEF MAPS AND DEMONSTRATION OF PROCESSES--A COAL BREAKER IN OPERATION--THE BITUMINOUS COAL INTERESTS--MODELS OF COKE OVENS--THE RAW MINERAL AND METAL PRODUCTS OF THE STATE FULLY SHOWN TOGETHER WITH THE MANUFACTURED ARTICLES--PETROLEUM AND ITS MANY USES--THE BETHLEHEM STEEL COMPANY'S GREAT DISPLAY OF HEAVY ORDNANCE AND STEEL CASTINGS AND FORGINGS--OTHER PENNSYLVANIA EXHIBITS.

THE Palace of Mines and Metallurgy was one of the most unique and artistic of all the exhibit buildings at the Exposition. Its general plan was rectangular, with broad overhanging roof or cornice, a style of architecture combining the Greek and Egyptian. Two of the main entrances were signalized by a pair of obelisks with statuary ornamentation. It was the largest structure which has ever been provided for exhibits of a similar character at any world's fair. On three sides the walls of the Building were set back about twenty feet from the facade, leaving an intervening space well adapted to certain classes of exhibits. The base of this facade, or outer screen, consisted of sculptured panels, illustrating quarrying,

PENNSYLVANIA AT THE WORLD'S FAIR.

mining and metallurgical operations. The floor area amounted approximately to nine acres, and in this Building and the adjacent space running southward through what was commonly called the Gulch were exhibited the mining products of the world.

It was the good fortune of Pennsylvania to be the most conspicuous exhibitor in this Department. The State Commission very early appreciated the importance of this branch of the work, and set aside for the preparation and installation of a sufficient display of the State's resources the largest sum of money given to any Department, being twenty-five thousand dollars. This amount was increased by the generous assistance rendered by the anthracite corporations to the extent of fifteen thousand dollars, and by contributions of materials from almost every description of mining interest, so that the installation when completed represented an expenditure of not less than sixty thousand dollars.

The Commission's Committee on Mines and Metallurgy, consisting of Cyrus E. Woods, Chairman; William H. Ulrich and George J. Hartman, promptly confirmed the Executive Officer's selection of Prof. Louis E. Reber to prepare and install this exhibit. Professor Reber is the Dean of the Engineering Schools of the Pennsylvania State College, with an intimate

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knowledge of the geological resources of the State, and an experience in collecting and installing an exhibit at the Chicago Exposition in 1893, which gave him peculiar advantages in such work. He had the entire confidence of those engaged in the multifarious industries covering what would naturally be included in such a display, and as the result proved, nobody in all the State could have been selected better equipped for the task. He received the personal award of a gold medal. The story of the work—how it was accomplished and the results achieved,—is modestly told in the following report, made by Prof. Reber to the Executive Officer after the close of the Exposition.

In the summer of 1903, application was made to the Department of Mines and Metallurgy at the Universal Exposition at St. Louis for space in the Mines Building for an exhibit to be made by the State of Pennsylvania. A floor surface of nine thousand square feet was applied for, and a definitely formulated plan of exhibit was submitted. This plan involved the utilization of the floor space in an exhibit



SEYMOUR DAVIS.

PENNSYLVANIA AT THE WORLD'S FAIR.

proper which embraced a number of special features and included specifications for a subterranean anthracite coal mine to be built under the floor. It was designed that this mine should be so constructed as to illustrate all possible conditions under which anthracite coal seams occur, with the present day methods of mining under these conditions, and improved forms of modern mining machinery in operation.

The Chief of the Department of Mines and Metallurgy expressed his appreciation of the exhibit proposed, but was unable to grant sufficient space for its accomplishment. It was, therefore, necessary to abandon the subterranean mine project, to cut down the exhibit proper in several respects and, even more to be deplored, to crowd together such exhibits as were essential to a complete presentation. That under these discouraging circumstances, the special award for "the best, most complete, and most attractive installation" was assigned to Pennsylvania, is matter for surprise and felicitation; the award gains added significance in consideration of the difficulties overcome. Its allotment to Pennsylvania may be ascribed to two chief facts: first, the liberal and broad minded recognition by the Commission of the cost of such an exhibition of the State's mineral wealth, conjointly with the generous disposition evinced by the



THE GREAT COAL ARCH PENNSYLVANIA MINES EXHIBIT

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mining and other interests of the Commonwealth, in contributing both money and materials, and, second, the constant and consistent effort made to maintain, throughout the installation, unity of idea in the exhibits displayed, and harmony of line in the architectural effects.

Not least among the difficulties encountered was the fact that no definite assignment of space was made until late in December, so that for several months it was necessary to hold any scheme of installation in consideration subject to possible modifications or change, and in fact, numerous readjustments were made to meet conditions imposed by the Exposition authorities. Finally an assignment was made to the State of Pennsylvania of a space one hundred and twenty-five feet long and fifty-one feet wide, near the eastern entrance to the Mines Building, open on three sides to main aisles, a partition on the fourth side separating it from the exhibit of the City of Pittsburgh.

Three main entrances were decided upon to be constructed in the form of imposing shafts or arches built of materials characteristic of the State products; one of anthracite coal, polished and in fracture, a second of cement, and a third combining stone, brick and terra-cotta. Connecting panels enclosing the

MINES AND METALLURGY.

space were of composition stone of Pennsylvania production.

In laying out the floor plan it was necessary in the first place to take a comprehensive view of the whole exhibit in order to eliminate the possibility of giving undue prominence to any one exhibit, exhibitor or class of exhibits. Mine models and machinery, relief maps, mounted transparencies, graphical displays of statistical data, all required much space for effective presentation, while the geological specimens having economic value with their commercial products, alone, might have been assigned to advantage the whole of Pennsylvania's space. Therefore, in order to secure proportion and equity in the installation, the entire display was mapped out in the beginning, and the relative positions and amount of floor space for every class of exhibit fixed at once. An architectural firm of established reputation was then employed to design individual cases and such special features as the entrances and enclosure, sketches and specifications being submitted for their guidance. This work in the



PAUL A. DAVIS, 3D.

PENNSYLVANIA AT THE WORLD'S FAIR.

hands of Messrs. Seymour and Paul Davis, 3rd, of Philadelphia, was carried out in a manner highly satisfactory to the Commission and justly called forth plaudits not only from all having home interests in the display but also from the Exposition officials and foreign representatives to the Exposition.

All matters of detail in arrangement and finish having thus been adjusted, it was possible to ask producers to contribute toward a definite scheme, not merely to make a showing of their products. This scheme included for all minerals which could be so displayed, samples of crude materials accompanied by specimens showing stages in the manufacture, and by the finished product. It will be readily appreciated that the exhibit, becoming by this means, a showing of processes as well as of products gained an educational value, not otherwise possible of attainment.

A conception of the magnitude of the undertaking which confronted the Commission in the adequate showing of Pennsylvania's mineral wealth, both actual and relative, may be obtained from the following table. Pennsylvania's mineral output in one year, it will be seen, amounted to more than half a billion dollars, which is over half the value of the total output of the same minerals in the entire United States. Even including the precious metals in the calculation would

MINES AND METALLURGY.

reduce the value of Pennsylvania's minerals to little less than one-half the value of the total national production.

VALUE OF THE PRINCIPAL MINERAL PRODUCTS OF PENNSYLVANIA AS COMPARED WITH THE UNITED STATES.

PRODUCTS.	PENNSYLVANIA.	UNITED STATES.
Pig Iron,	\$168,686,884.00	\$372,775,000.00
Petroleum,	15,266,093.00	70,981,625.00
Natural Gas,	16,182,834.00	30,754,957.00
Limestone,	3,507,212.00	30,076,870.00
Marble,	160,423.00	5,047,110.00
Sandstone,	2,642,903.00	9,924,725.00
Slate,	3,547,322.00	5,696,051.00
Granite,	668,687.00	18,556,336.00
Cement,	10,471,101.00	24,940,708.00
Coke,	38,451,722.00	63,339,167.00
Clay,	17,833,425.00	122,169,531.00
Anthracite Coal,	152,500,000.00
Bituminous Coal,	125,000,000.00	289,000,000.00
Totals,	\$564,918,606.00	\$1,043,262,080.00

Colorado and New Mexico each produce a small quantity of anthracite, but it was impossible to get figures representing its value. This percentage of production is so small, however, that Mr. E. W. Parker, statistician of the United States Geolog-

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ical Survey, in an article entitled "Production of Coal," says, "Pennsylvania alone produces more coal than any country in the world with the exception of Great Britain and Germany and exceeds the combined production of Austria, France and Belgium." In 1903 the anthracite coal production of the State was over 66,000,000 tons with a value of over \$152,500,000,00. and this is equal to nearly the entire out-



JAMES E. RODERICK.

put of the United States. The amounts of this coal mined in other states are comparatively so small as to be negligible.

To do justice in the exhibit to so important an industry, it was necessary to turn for assistance to the great anthracite coal mining operators of the State. Plans for an exhibition embracing a number of features,

the most important of these being the anthracite coal entrance, a mammoth cube of coal, specimens of marketable coal in all sizes, a comprehensive mine model and a working breaker, were submitted to the super-

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intendents of the leading coal companies. After a period of deliberation, the sum of \$15,000.00 was subscribed by them for this use and an advisory committee was appointed to co-operate with the Commission. In this connection, the services of Mr. James E. Roderick, Chief of the Department of Mines, were invaluable. The following named companies united in contributing to the exhibit.

Philadelphia & Reading Coal and Iron Company,
Delaware, Lackawanna & Western R. R. Company,
Delaware & Hudson Canal Company,
Lehigh Valley Coal Company,
Lehigh & Wilkes-Barre Coal Company,
Pennsylvania Railroad Coal Companies.
Pennsylvania Coal Company,
Scranton Coal Company,
Lehigh Coal and Navigation Company,
Temple Iron Company,
Hillside Coal and Iron Company,
Coxe Brothers & Company, Incorporated,

The advisory committee consisted of W. J. Richards, General Manager of the Philadelphia and Reading Coal and Iron Company; Robert A. Quin, Manager of the Pennsylvania Railroad Coal Companies; C. C. Rose, Manager of the Delaware and Hudson Canal Company; with A. W. Law, Vice

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President of the Temple Iron Company as Secretary-Treasurer.

The exhibit proposed involved the design of models, the preparation of accurate drawings, and the remodeling of a coal breaker, work which required the services of a mining engineer thoroughly acquainted



W. J. RICHARDS.

ROBT. A. QUIN.

C. C. ROSE

A. F. LAW.

THE ANTHRACITE ADVISORY COMMITTEE.

with the anthracite coal industry in all its phases. Mr. A. H. Storrs, of Scranton, was employed to design and superintend the construction of the mine model, and his services in this and other directions were very valuable. It was difficult to find a man capable of building a model of such comprehensive scope and intricate detail as was specified in the mine model as ultimately designed. The contract was finally given to Mr. E.W. Howell, of Washington, D. C., with excellent results. This model in design and execution is unde-

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niably the best thing of the kind that has ever been shown in this country. It has been sent to Harrisburg and will be an interesting exhibit in the Mining Department of the new Capitol. The anthracite exhibit, in addition to this model, which was its most important feature, included the model of a working breaker, a block of coal of unusual size, sixteen pyramidal cases displaying varieties of coal in all marketable sizes, a collection of fossils, geological sections of coal basins, relief maps, photographs and prints, a collection of miner's tools and a coal arch forming the main entrance to the space.

The following descriptive paragraphs embody essentially the report on this work of the Advisory Committee to the contributing Companies: "The anthracite coal mine model, sixteen feet by nine feet in dimensions, built to a scale of five feet to one inch, showed the uncovered workings of an eight foot vein, having all pitches from flat to eighty degrees. Back of the mine the over-lying measures were seen in section, with a shaft and "gunboat slope" through which the coal was taken to two breakers. The self-dumping shaft cages, the conveyers carrying the coal from the shaft to the breaker, and an electric locomotive which hauled coal from parts of the mine to the shaft were all in operation, being run by a small concealed

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electric motor. The flushing of culm was shown and full details of ventilation, air bridges, doors, brattices, and in fact a vast amount of detail, men, mules, cars, tools and tool boxes. An electric slope hoist, electric pump, gravity plane and a duplex steam pump at the foot of the shaft, mule stable and emergency hospital with full equipment were also included.

“The stripping of a forty foot vein, which had been previously worked over, was shown with two steam shovels at work, refuse plan and other features. The surface plant was completely shown, with the boiler houses, engine houses, shops, electric power house, culm planes, railroad cars and locomotives. The background was formed by a painting of characteristic coal region scenery, showing mining villages and coal breakers.”

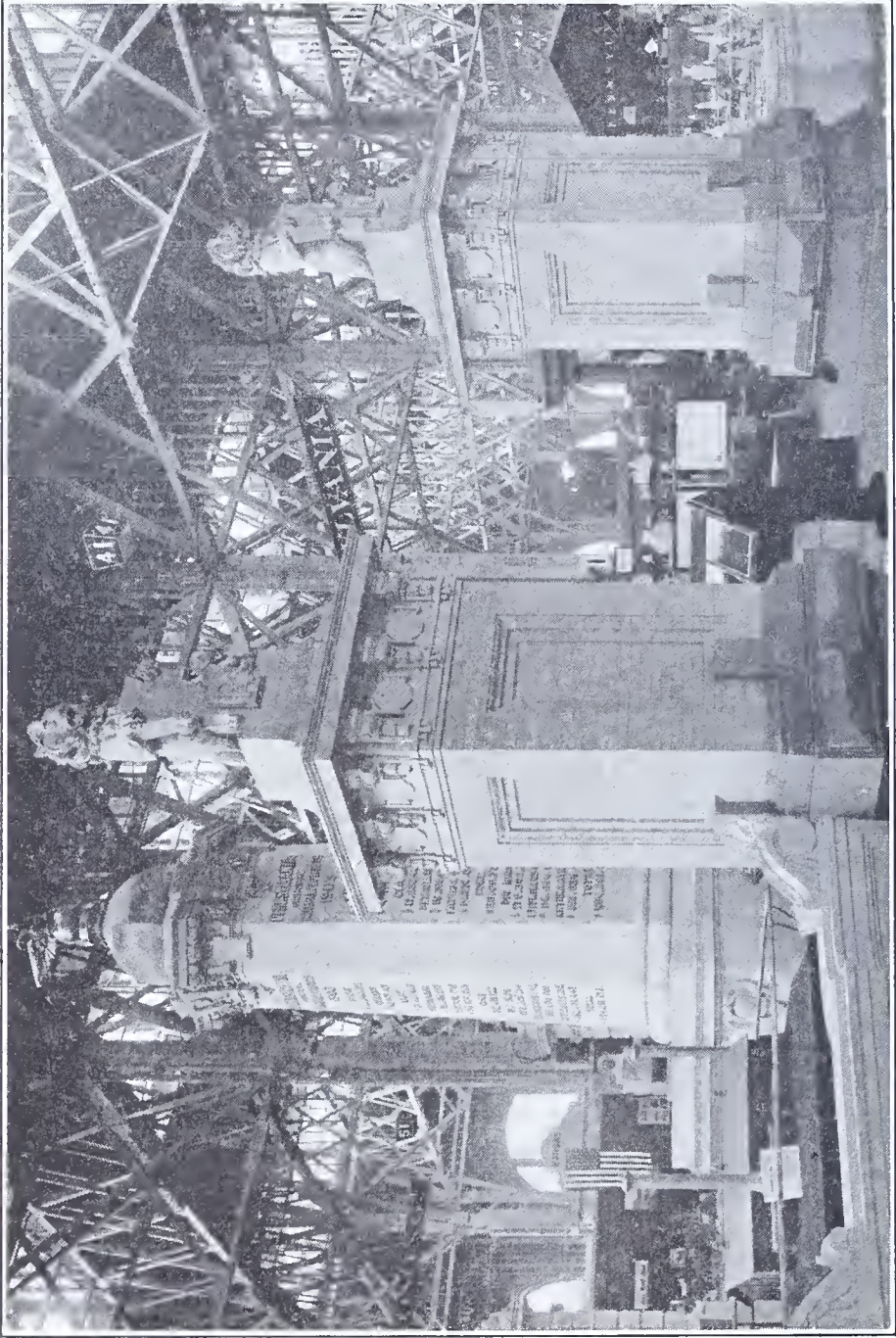
The coal breaker model which was built to a scale of one inch to the foot, in its main features, occupied a space of nine by twenty-five feet and stood fourteen feet high. One corner was devoted to a small section of a mine showing both a flat and pitching vein. A shaft was arranged for hoisting from the lower, or flat, vein and a plane with “bull-frog” works directly from the other vein to the breaker. The descending cars on this plane were taken off over a “bridge”

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and gravitated into the mine, backswitched and returned to the foot of the plane for re-hoisting.

A large block of coal was an unusual feature. This piece of coal was secured from the Lattimer strippings of Pardee Brothers & Company, out of the bottom bench of the mammoth vein. It was about six feet by six feet eight inches and weighed over eleven tons. The getting out of a piece of coal of this size and the placing of it intact upon its base at the exhibit was a difficult piece of work. Specimens of coal in marketable sizes were shown grouped around the large block of coal, the latter standing upon a higher pedestal. There were sixteen of these cases, which were of glass with brass corners, and with glass shelves separating the sizes arranged in order, with the finest size at the top of the case. The cases were pyramidal, about eighteen inches square at the bottom and six inches at the top, and were six feet high. The sizes and name of the Company contributing were marked in gold letters on the glass.

Two cases about three feet by eight feet with all plate glass tops, contained a selection of characteristic fossils from the coal regions, which were chosen from the collection of the State Geological Survey in possession of the Academy of Natural Sciences at Philadelphia.



TERRA COTTA ENTRANCE AND STATISTICAL SHAFT, PENNSYLVANIA MINES EXHIBIT.

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Geological sections were shown by drawings upon ground glass which were handsomely mounted in a case and illuminated from behind with electric lights. There were four of these transparencies, each twenty-eight inches by seven inches, one for each of the anthracite fields, Northern, Eastern Middle, Western Middle and Southern. Several sections were shown for each, filled with a skeleton map revealing the location of these sections in the field. These sections were copies of the published sections of the Pennsylvania State Geological Survey.

The relief maps were, with one exception, contributed by the Pennsylvania State College. They showed the formation of the Mammoth vein in the Mahanoy region, the Panther Creek field, and the entire Anthracite fields. This latter map was loaned to the Exhibit by President Thomas of the Lehigh Valley Railroad Company. A large relief map, from the Pennsylvania State College, of the entire State of Pennsylvania, on a scale of two miles to the inch, displayed the complete Anthracite fields.

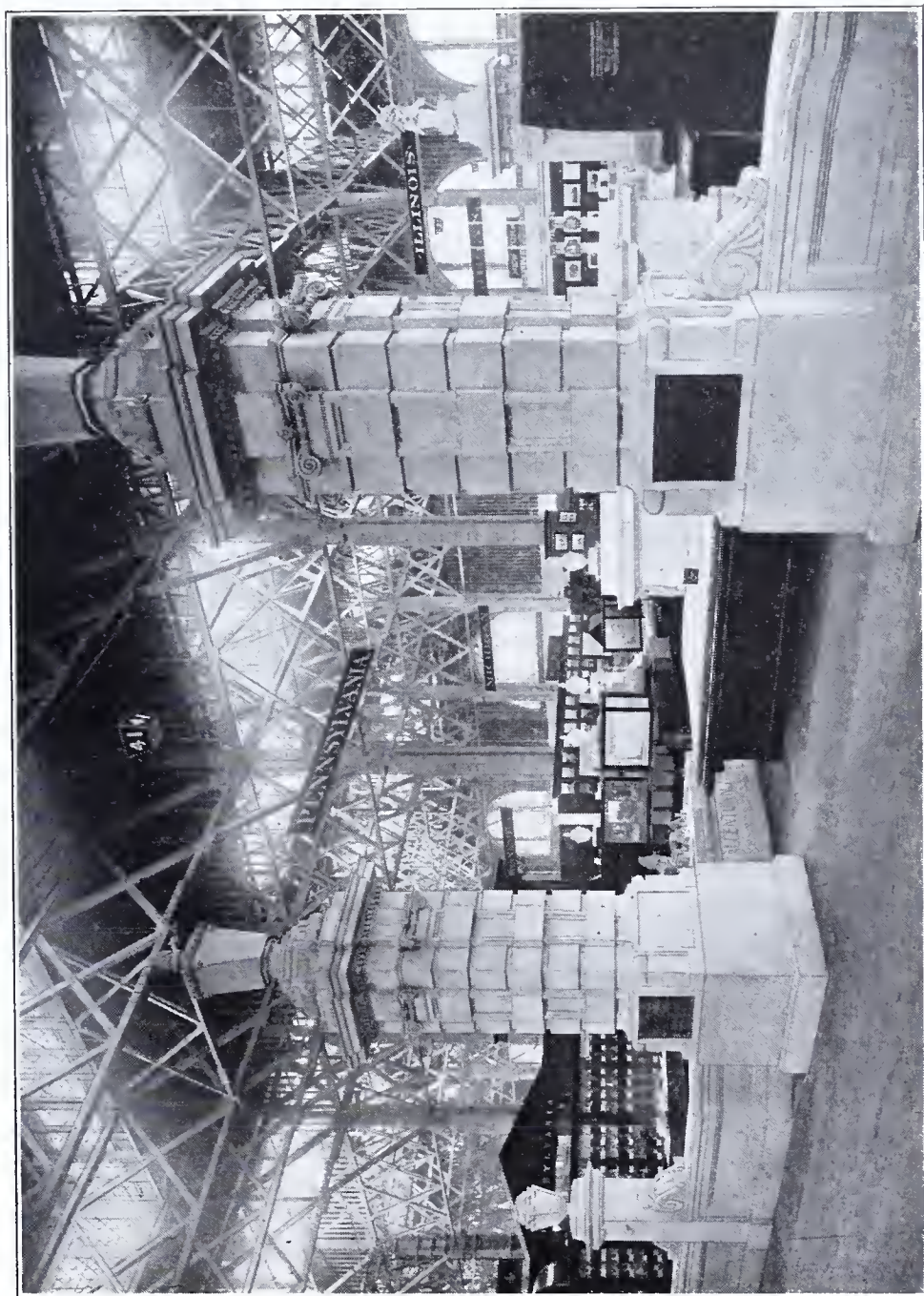
Photographs and prints were shown in swinging frames, two feet by three feet, around a central stand, and as transparencies in cases to correspond with the Geological section above described. The transparencies were made from photographs taken espec-

PENNSYLVANIA AT THE WORLD'S FAIR

ially for the occasion and selected to represent as great a variety of operations as possible. They were made by William H. Rau, of Philadelphia. Mr. Rau was subsequently made official photographer for the St. Louis Exposition. The pictures in the swinging frames were some eighteen inches by twenty-two inches and some groups of smaller sized pictures, there having been eight frames. There were fourteen transparencies, all eighteen inches by twenty-two inches. These photographs gave views of breakers, strippings, machinery and scenes in the mines and breakers.

The exhibit of mining tools comprised a quite complete collection of the appliances generally used by the miner. Some were supplied by the Pennsylvania State College, others purchased, or contributed by the manufacturers.

Approaching the exhibit from the east, the massive coal arch which formed the entrance at that end to the Pennsylvania section commanded attention. The arched opening was about eight feet wide and ten feet high and the entire structure about twenty feet wide and twenty-two feet high. Rough and polished coal were combined in the design in a very effective manner. The polished arch ring carried "Pennsylvania" in gold letters upon both sides and was surmounted by the State Coat-of-Arms modeled in high



CEMENT ENTRANCE, PENNSYLVANIA MINES EXHIBIT.

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relief. This arch was one of the most attractive and artistic features of Pennsylvania's exhibit. The fact that anthracite coal could be so brilliantly polished called forth expressions of much surprise. The designers, Messrs. Seymour and Paul Davis 3rd, are to be congratulated on the effectiveness of this structure. Nothing of the kind had ever been attempted in anthracite coal and there was great doubt as to the possibility of its accomplishment. It was difficult to find a contractor willing to undertake the work. The Carlucci Stone Company of Scranton, however, finally undertook it and completed it most successfully, but not without discouraging experiences.

The railing enclosing the eastern end of the Pennsylvania space on either side of the Arch effectively combined anthracite coal and its accompanying slates, in panels, with a top rail of Nicholson brownstone and handsomely carved corner brackets. The highest award, the Grand Prize, was given to this exhibit,

Charts were displayed showing value of coal produced in Pennsylvania, compared with other States. in 1903:

PENNSYLVANIA.....	\$270,211,538	COLORADO.....	\$9,750,867
ILLINOIS.....	36,360,983	IOWA.....	8,716,028
OHIO.....	32,007,962	KENTUCKY.....	7,928,500
WEST VIRGINIA.....	25,150,424	WYOMING.....	7,778,642
ALABAMA.....	14,625,941	KANSAS.....	7,524,653
INDIANA.....	10,383,649	TENNESSEE.....	6,887,662

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MISSOURI.....	\$6,749,491	UTAH.....	\$2,202,723
WASHINGTON.....	6,431,942	TEXAS.....	1,947,040
MARYLAND.....	5,767,487	NEW MEXICO.....	1,794,580
INDIAN TERRITORY.....	5,514,276	GEORGIA.....	673,034
VIRGINIA.....	3,650,877	NORTH DAKOTA.....	348,193
ARKANSAS.....	3,473,556	CALIFORNIA.....	244,800
MICHIGAN.....	2,688,288	OREGON.....	158,947
MONTANA.....	2,370,825	NORTH CAROLINA.....	30,000

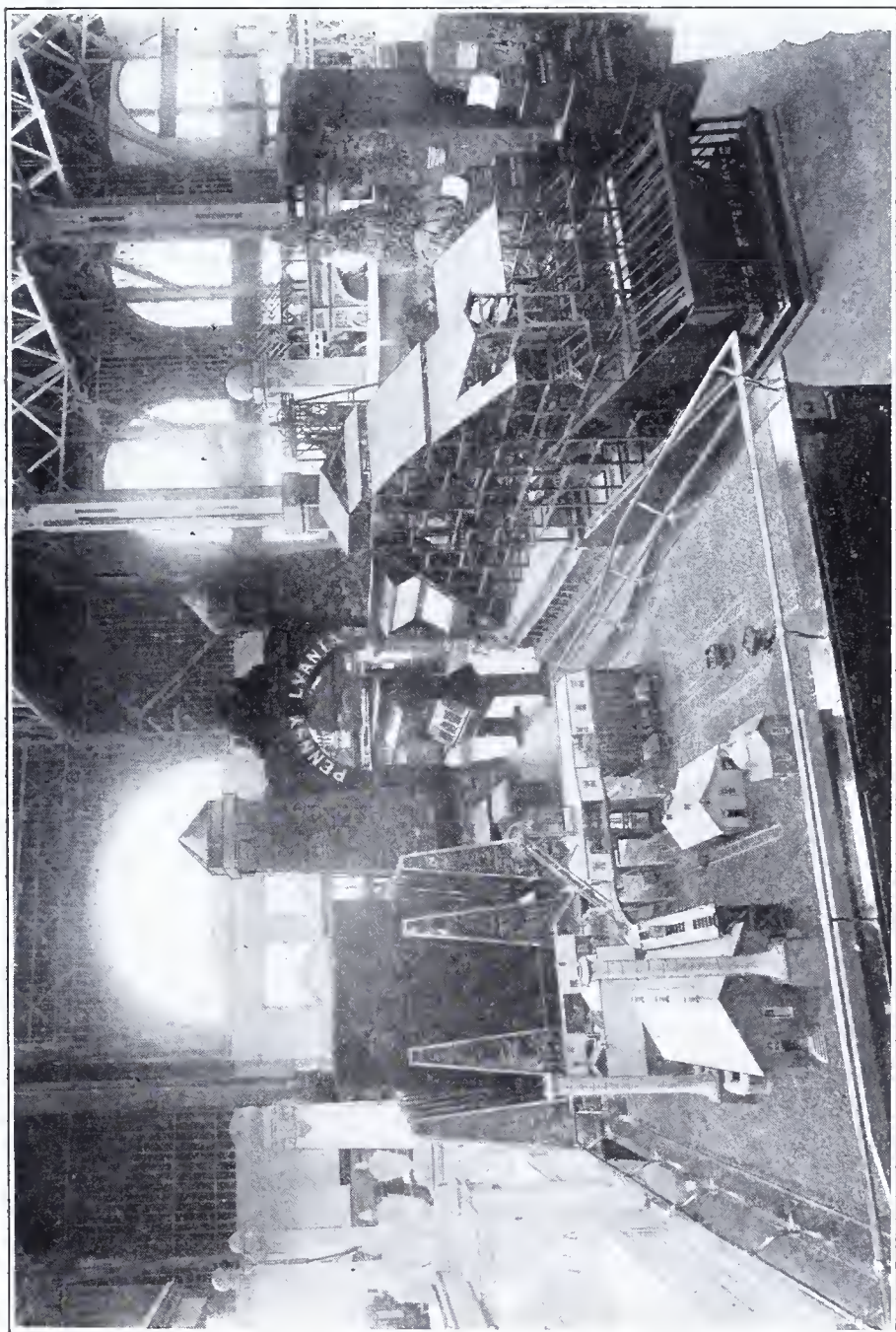
In consideration of the fact that the production of bituminous coal is less peculiar to the State of Pennsylvania, a proportionately smaller space was assigned to it than to anthracite. However, the value of the output of bituminous coal in the State in 1903 having amounted to \$121,752,759.00, a sum almost three times as great as the value of the production in any other State in the Union, it may readily be seen that the relative place of this coal among the mineral products of Pennsylvania is an important one. Plans for its exhibition embraced three objects: First, to show cross-sectional cuttings, including top and bottom slates, from all well known veins in the State; second, to illustrate methods by means of working models and pictures, and third, to present specimens of coke from famous collieries.

It was ascertained from the geological reports at what place sections should be obtained in order to fully represent the bituminous coal areas. Sixteen regions were decided upon. The companies owning

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the mines were asked to prepare sections in accordance with specifications sent them, and responded generously to the call. Twelve sections two feet six inches by two feet six inches in cross sectional area, extending entirely through the seam and in most cases showing the top and bottom slate, fairly well represented the entire State. The mine operators in every case delivered the coal on Pennsylvania's space in the Mining Building. Some of these sections weighed over six thousand pounds. The difficulty of mining them without breakage, and transporting them to St. Louis was great, and the Commission is indebted to the Mining Companies for their co-operation. In all cases the analysis, location and name of the vein were given. The exhibit was undoubtedly the most comprehensive of its kind that has ever been made of the bituminous coals of Pennsylvania.

The names of the contributing Companies and location of veins are as follows: Beech Creek Coal and Coke Company; Berwind-White Coal Mining Company, 1 section of B. vein, Winber, 1 section of D. vein, Horatio; Cambria Steel Company, 1 section of C. vein; Commercial Coal Mining Company, Kelley vein, near Six Mile Run; H. C. Frick Coal and Coke Company, Connellsville Seam; Jamison Coal and Coke Company, 1 section of Pittsburg vein; Leechburg Coal and Coke



LOOKING DOWN ON PENNSYLVANIA MINES EXHIBIT.

PENNSYLVANIA AT THE WORLD'S FAIR.

Company; Pennsylvania Coal and Coke Company, Miller or B. vein at Ehrenfeld, Lemon or E. vein at Bennington; Rochester and Pittsburg Coal and Iron Company, Lower Freeport vein, near Anita; Westmoreland Coal Company, 1 section gas coal vein.

A model of the surface plant of a well known bituminous mine and coke oven, fifteen by twelve feet in dimensions, was exhibited. It included the boiler house, power plant, shaft, hoist and tipple, with several miners' houses, as well as the coke ovens of the bee hive type having the appearance of real ovens in operation, due to the presence of flames issuing from them. Cars were shown being loaded at the tipple and en route to the coke ovens, which were charged by this means. Specimens of coke from several manufacturers were variously displayed and a brick coke oven built to scale was shown. Pictures of mining regions and plants completed the bituminous coal exhibit.

The accompanying table, showing the output in 1902 of the leading clay producing states, values Pennsylvania's production at nearly eighteen million dollars. For the same year, Ohio's production was valued at twenty-four million dollars, this State alone outranking Pennsylvania; New Jersey, third in order of output, produced clay valued at about twelve and a half million dollars.

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The clay exhibit comprised four main departments: First, pottery clays; second, tile clays; third, paint clays; and fourth, fire clays. The pottery clays were shown in the crude condition in which they are taken from the earth; in ground and refined stages accompanied by specimens of coloring clays; in the mixed mass ready for moulding; in articles in the plain blank; in the blank with pattern applied; the same with design fired in but still in biscuit finish; and in some specimens the same fired again to fix a gilding. With these process pieces the saggars in which the firing was performed were shown.

In order to avoid duplication, a single large manufacturer was asked to prepare this exhibit in accordance with the general plan adopted for such displays. In response to this request the Mayer Pottery Company, of Beaver Falls, prepared an exhibit which was interesting and instructive, at the same time being pleasing in effect.

A similar exhibit was prepared by the Beaver Falls Art Tile Company of wall tiles; the Star Encaustic Tile Company, of Pittsburg, supplied the exhibit of flooring tiles, and C. K. Williams and Company, of Easton, supplied an exhibit of paint clays, which was supplemented by certain specimens not produced by them. All these displays were valuable from an



SLATE AND PETROLEUM. PENNSYLVANIA MINES EXHIBIT.

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educational point of view and attractive in appearance. In addition to the Grand Prize given the collective clay exhibit, two Gold and two Silver medals were awarded by the Mining Jury.

Fire clays in crude condition, partially burned, and in brick, were supplied by producers in different parts of the State. The following named firms contributed: Cambria Fire Brick Company, Figert; Clearfield Fire Brick Company, Clearfield; Columbia Brick Company, Columbia; De Laney Fire Brick Company, Fairchance; Dixon Woods Company, Pittsburg; Frederick Monroe and Company, Farrandsville; Harbison-Walker Refractories Company, Pittsburg; Solomon O. Hart, Cogan House; David Jones (Clays), Philadelphia; George W. Keys, (Clays) Conshohocken; Kittanning Fire Clay and Brick Company, Pittsburg; E. E. Melick, Fire Clay, Retort; Mill Hall Brick Works, Clays and Bricks, Mill Hall; Queens Run Fire Brick Company, Lock Haven; The A. T. Smith Company, Clay and Brick, New Brighton; Joseph Soisson Fire Brick Company, Connellsville.

Table showing value of clays produced in Pennsylvania, compared with other States in 1902:

PENNSYLVANIA.....	\$17,833,425	NEW YORK.....	\$8,414,113
OHIO.....	24,249,748	INDIANA.....	5,283,733
NEW JERSEY.....	12,613,263	MISSOURI.....	5,166,414
ILLINOIS.....	9,881,840	IOWA.....	2,843,336

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WEST VIRGINIA.....	\$2,518,544	MAINE.....	\$656,648
MASSACHUSETTS.....	2,375,667	LOUISIANA.....	642,424
CALIFORNIA.....	2,253,096	SOUTH CAROLINA.....	613,511
COLORADO.....	2,200,983	ARKANSAS.....	520,178
MARYLAND.....	1,905,362	MISSISSIPPI.....	516,209
MINNESOTA.....	1,883,731	UTAH.....	359,005
KENTUCKY.....	1,873,043	OREGON.....	318,604
MICHIGAN.....	1,744,040	MONTANA.....	278,727
TEXAS.....	1,693,814	DISTRICT OF COLUMBIA..	267,627
VIRGINIA.....	1,577,833	OKLAHOMA.....	235,975
GEORGIA.....	1,508,669	FLORIDA.....	175,442
KANSAS.....	1,221,588	INDIAN TERRITORY.....	167,674
RHODE ISLAND AND } ...	1,217,678	DELAWARE.....	144,934
CONNECTICUT		NORTH DAKOTA.....	141,214
WISCONSIN.....	1,026,658	ARIZONA.....	114,608
ALABAMA.....	1,016,364	IDAHO.....	93,048
TENNESSEE.....	913,125	VERMONT.....	78,886
WASHINGTON.....	905,231	NEW MEXICO.....	68,879
NEW HAMPSHIRE.....	887,124	SOUTH DAKOTA.....	63,425
NORTH CAROLINA.....	795,521	NEVADA.....	45,600
NEBRASKA.....	757,668	WYOMING.....	22,150

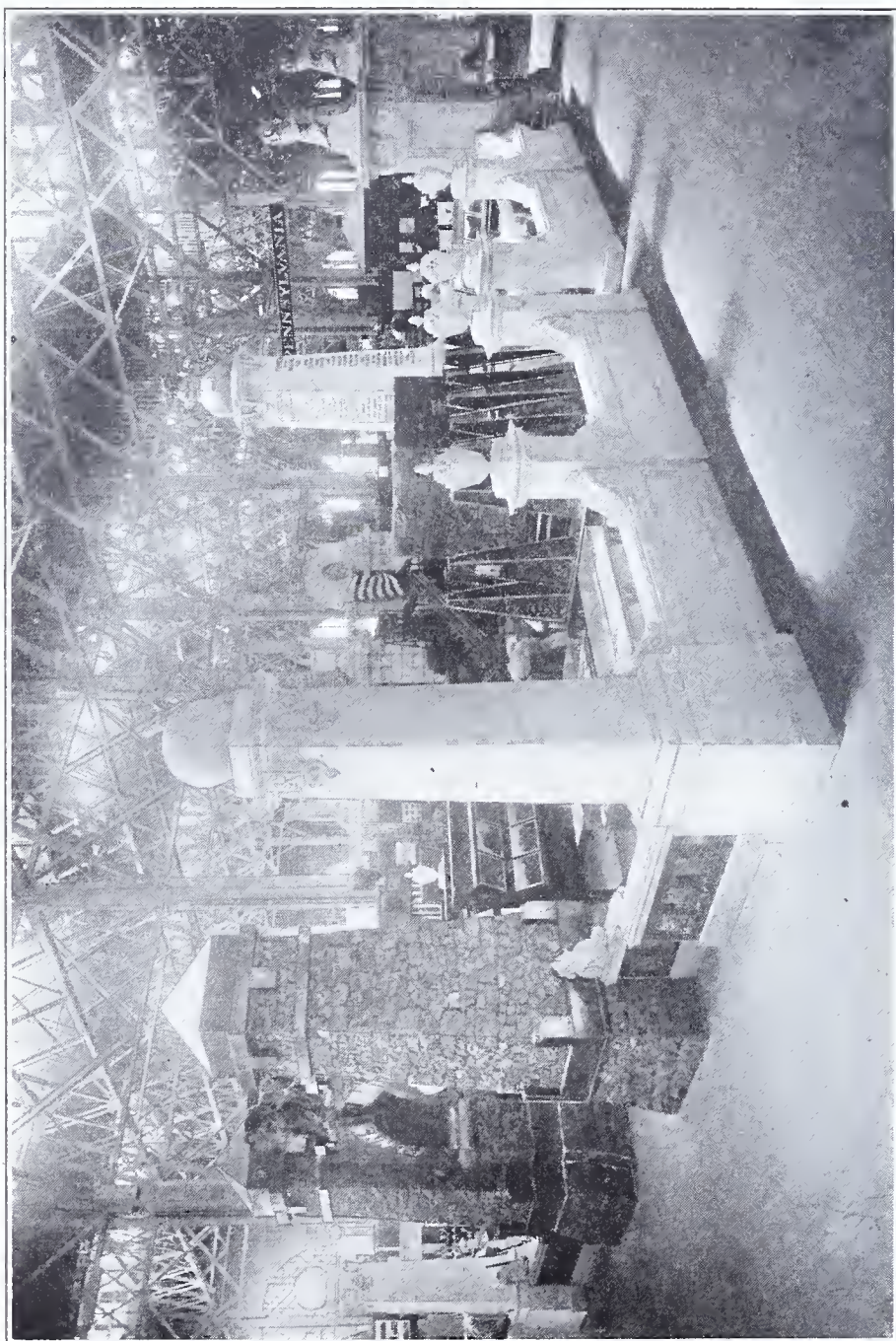
The United States leads all other countries of the world in its vast natural gas areas. In 1903 it produced 99 $\frac{2}{3}$ per cent. of the world's output. In that year, four States, Pennsylvania, West Virginia, Indiana and Ohio, contributed 94 per cent. to the total output. The production of Pennsylvania alone amounted to 45.18 per cent., having a value of \$16,-182,834.00. Natural gas, then, holds an important rank among the mineral resources of the State. Owing to easily appreciated difficulties attendant upon its presentation, it appeared in the exhibit only upon statistical charts and in photographs of gas and petroleum producing regions.

MINES AND METALLURGY.

For a number of years Pennsylvania led in the production of petroleum, but has been displaced in recent years by Ohio and West Virginia. The value of Ohio's production in 1902 amounted to over twenty millions of dollars, West Virginia's to over seventeen millions of dollars, and Pennsylvania's to over fifteen millions of dollars, as shown by the accompanying table:

PENNSYLVANIA.....	\$15,266,093	LOUISIANA.....	\$188,985
OHIO.....	20,757,359	TENNESSEE AND	}..... 141,044
WEST VIRGINIA.....	17,040,317	KENTUCKY	
INDIANA.....	6,526,622	WYOMING.....	43,771
CALIFORNIA.....	4,873,617	INDIAN TERRITORY.....	32,190
TEXAS.....	3,998,097	ILLINOIS.....	1,000
NEW YORK.....	1,530,852	OKLAHOMA	}..... 1,816
COLORADO.....	484,682	MICHIGAN AND	
KANSAS.....	292,464	MISSOURI	

The following comprehensive description of the petroleum exhibit was prepared by Dr. Mann, who collected the materials and arranged the display at St. Louis. The history of the oil fields of Pennsylvania is a most interesting one, and in preparing the exhibit an effort was made not only to show the various crude petroleums and their products, but also to illustrate by specimens the geological formation of the oil fields and the character of the sand, common to these districts as illustrated by the strata passed through in boring some of the deeper wells. The Commission was fortunate in securing borings of a



SHOWING ENCLOSURE PENNSYLVANIA MINES EXHIBIT.

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well twenty-one hundred feet deep and these different rocks and sands in percentages of their depth were arranged in a long glass tube.

The petroleum exhibits as a whole comprised the following parts: 1, Collection of Pennsylvania Oil Sands and Rocks, including several curiosities as brought to light by the drill of the oil producer. 2, Specimens of natural refined oils. 3, Specimens of the average Pennsylvania crude oil from the different oil producing counties of the State. 4, Collection of products made from the average Pennsylvania crude oils. 5, Photographs from historical parts of the Pennsylvania oil regions.

1. Collection of Sand and Rocks. These specimens were very characteristic representatives of the geological formation of the Pennsylvania oil fields from which the Pennsylvania crude petroleum is taken. These sands and rocks were taken out of the earth with the ordinary drilling tools or by blasting out with nitroglycerine. The oil producer can judge with fair accuracy the quality and quantity of crude oil present from the depth, at which these sands and rocks are taken, from their appearance, physical conditions, extension and thickness of layer. In connection with this collection, there were several specimens of shell-conglomerates, as found on the surface all over the

PENNSYLVANIA AT THE WORLD'S FAIR.

Pennsylvania oil regions, which are considered sure indicators of the presence of underlying crude petroleum. They also have strengthened the theory, that the Pennsylvania oil regions are dried up sea-basins and the Pennsylvania crude petroleum is the product of decomposing bodies of sea animals, under the influence of heat, pressure and exclusion of air.

2. Specimens of natural refined oils. There were about two hundred of these specimens mounted in flasks of special design having the coat-of-arms of Pennsylvania etched upon the face, and clearly labeled.

3. Collection of Pennsylvania's crude oils. The general rule is, and a study of the eighty specimens which were exhibited demonstrated, that the crude oils nearest the surface—say first sand, Venango County, 375 feet depth—are the heaviest in gravity and dark in color. The crude oils from the lower sands—say Washington County, fifty sand, 2,555 feet depth—are the lightest in gravity and of light color.

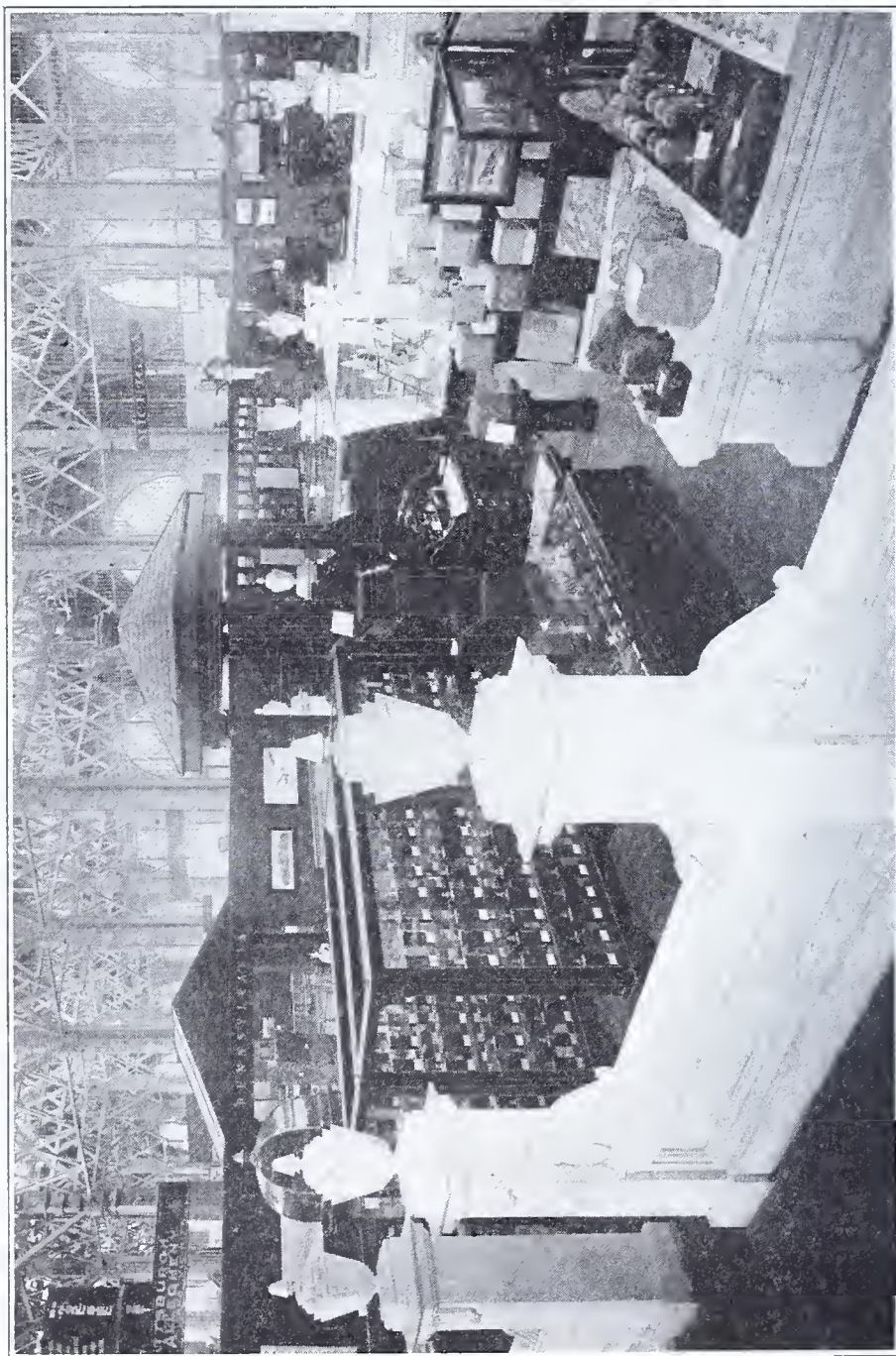
4. Collection of products made from Pennsylvania's crude oils. The Pennsylvania's crude oils—petroleum—are hydrocarbons, which belong to the olefine and paraffine series, and they have the chemical formula $C_n H_{2n}$, resp. $C_n H_{2n+2}$. Their principal constituents are carbon and hydron. The Pennsylvania crude oils and all products made therefrom are still

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considered the standard of perfection and there are no exceptions.

To separate the different products from Pennsylvania crude oils in a technical and practical way there are in use the distilling process, the concentrating process, and the freezing or chilling process for the solid paraffine waxes. By the distilling process are mostly obtained the gasolines, benzine, naptha, illuminating oils, neutral oils, spindle oils, paraffine oils, machinery and engine oils; by the concentrating process are obtained most of the heavy lubricating oils and petroleum hard oils; and by the freezing or chilling process the many grades of paraffine waxes are made. By the application of heat to a mixture of hydrocarbons of different boiling points, those hydrocarbons, which have the lowest boiling points will rise up first in vapor form, and these will be followed by the hydrocarbon vapors, which have the next high boiling point and so on. It is clear, also, that the more sharply we can separate these vapors of hydrocarbons of different boiling points, or in other words, the better we can fractionate these vapors—or distillates—they will show more uniform qualities. Each manufacturer of petroleum products tries in his own way, to make the best practical application of these rules.

The separation of various distillates from crude



BUILDING STONES AND PAINTS, PENNSYLVANIA MINES EXHIBIT

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petroleum, in the way indicated, is carried on in huge iron stills, each holding one thousand or more barrels of crude oil. These stills are heated in furnaces and the rising vapors are carried off from the top of the still through the so-called "goose-neck" to the condenser, a system of connected pipes immersed in cold water, connected on one side with the goose-neck, and on the other end the last joints of these pipes, the so-called "tailpipe" is at the "tailhouse" connected with the different receiving and storage tanks, into which the condensed distillates are distributed according to their gravity and other physical tests. The great variety of distillates obtainable from crude petroleum, naturally require a great many tanks and other apparatus. In order to run a large modern petroleum refinery practically and successfully on the scale of say three million barrels of crude petroleum per year, it requires a plant costing several million dollars, covering about one hundred acres of land, requiring more than one hundred miles of pipes of all sizes and employing six hundred men.

The distillates require more or less refining according to the purpose for which the final products shall be used. For instance, all illuminating oils require their distillates to be treated chemically, before they can finally be used as kerosene oils in lamps or

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lanterns. These treaties are carried on in the "agitator" in large lead lined iron tanks holding 3,000 or more barrels of distillate. There the distillate is agitated with strong sulphuric acid, to remove all impurities and odors that may be inherent to the distillate. After this acid treatment, all acid must be carefully removed, and all traces of it washed out with water and alkali. Finally this treated and washed distillate is taken from the agitator to the bleacher where it is kept until it is perfectly sweet in odor and clean and bright as water. Now the finished distillate is called 120 or 150 water, white oil or kerosene oil, and is ready for use in lamps or lanterns. The heavy products of crude oil also must be carefully refined and in various ways. Some require chemical treatment, while others require for instance a continued filtering through bone black or other filtering medium.

The one hundred and twelve products, which were exhibited, were fair representatives of all the different classes of products made from the Pennsylvania crude petroleum and most of their names indicate the purpose for which they are used. For instance, Mineral seal illuminating oil takes the place of natural seal oil in the lantern of the railroad switchman. Miner's oil is used in the open flickering lamp fastened to the hat of the miner, working his way down in the coal

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mines. Spindle oils are used for lubricating fast running spindles, where years ago nothing but sperm oil was used. Wool oils are used for lubricating sheep's wool in the various states of the wool-washing or refining process. Paraffine waxes take the place of other more costly natural waxes, as bees wax, Japanese wax, Carnauba wax. Parffine waxes are used in enormous quantities in the manufacture of candles, matches, for preserving jelly, fruit, for laundry purposes, for impregnating stone, brick, wood, for insulating, for cable and wire coating.

Petroleum hard oils are the basis of greases and salves par excellence. Other petroleum products are used for medicinal purposes, for instance, glycerine petrae is a perfectly sweet, neutral substitute for natural glycerine, and is used for spraying nose and throat by itself or compounded. Castroleum is used for lubricating internal organs (lungs); petroleum oil for external and internal applications. A Gold Medal was awarded the collective Oil Exhibit.

In 1903 the pig iron produced in Pennsylvania was valued at \$168,000,000.00, and amounting to almost half the total production of the United States. In the same year Pennsylvania manufactured 8,434,627 tons of steel out of a total output in the United States of 14,584,978 tons; she made nearly one-third of the

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wire rods; one-third of the wire nails; one one-half of the cut nails and considerably over one-half of the total rolled iron and steel.

It was impossible, in the limited space devoted to Pennsylvania's Mining and Metallurgical Exhibit, to do justice to her iron and steel industries. No attempt was made to exploit them further than by specimens of the characteristic iron ores of different regions, by comprehensive statistical data conspicuously and attractively displayed, and by relief maps showing the areas of iron production.

Iron producers who supplied specimens for Pennsylvania's Exhibit, were as follows: Carnegie Steel Company, Pittsburg; W. B. Chamberlin, Danville; Cornwall Ore Bank Company, Cornwall; Peter S. Duncan, Ore Hill; Durham Iron Works, Leigelsville, red hematite and magnetite iron ores; Emmens Nickle Company, Youngwood; Henry Erwin, Bethlehem; Friedensville Zinc Company, Friedensville; Clay Gorham, Cogan House; H. K. Hartzell, Philadelphia; Dr. William Howell, Lycoming; H. A. Hoopes, Harrisburg; Logan Iron and Steel Company, Lewistown; E. M. McConnell, New Castle; Lynn and McCoy, Milesburg; Mrs. D. D. Menges, Allentown; Abram Myer, Cogan House; Montour Iron and Steel Company, Danville; Nickel Mines and Furnaces, Gap

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Station; Solomon O. Hart, Cogan House; Pennsylvania Plumbago Company, Phoenixville; Phoenix Iron Works, Phoenixville; Dr. E. Herber Plank, Morgantown; Pottstown Iron Company, Pottstown; William Potts, Weybrook; Rock Hill Iron and Coal Company, Rock Hill Furnace; Dr. John Schoenfeld, Reading; George Shaffer, Cogan Station; A. W. Smith, Beaver Springs; C. K. Williams and Company, Easton.

Characteristic specimens of the following minerals having economic value were displayed: feldspar, asbestos, graphite, mica, nickel ore, zinc ore, iron ores, lead ores, gypsum and others. The samples were contributed to the exhibit by the Museum of the Pennsylvania State College and by mineral producers throughout the State. An oil painting accompanied by specimens of ores and resultant products, showing metallurgical processes in the manufacture of zinc oxides and spiegel was lent by the Pennsylvania State College.

The Lehigh Portland Cement Company of Allentown, H. C. Trexler, President, and C. A. Matchan, General Manager, contributed and installed a cement entrance consisting of two obelisks, each twenty-two feet in height, four feet by four feet at the base, standing thirteen and a half feet apart. This Company presented also a table of cement eight feet by six feet

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in dimensions, of peculiarly attractive design, used in the preparation of their cement; also specimens of cement rock of representative value, and test briquets with data. The display of the Lehigh Portland Cement Company attracted deserved attention; their admirable product and notable liberality entitled them to the favorable comment universally expressed. A Gold Medal was awarded to this Company.

The following list includes the names of other operators who supplied individual exhibits, in order to show the variety of cement materials and production in the State and the localities contributing to it. American Cement Company, Coplay; Atlas Portland Cement Company, Northampton; Bonneville Cement Company, Siegfried; Coplay Manufacturing Cement Company, Coplay; Dexter Portland Cement Company, Nazareth; International Cement Company, Elizabeth; Lehigh Portland Cement Company, Allentown; Martin's Creek Portland Cement Company, Martin's Creek; Milroy Cement Company, Milroy; Nazareth Cement Company, Nazareth; Pennsylvania Cement Company, New York City; Phoenix Cement Company, Nazareth; Whitehall Portland Cement Company, Philadelphia.

These exhibits were shown by the method adopted wherever possible, namely: the presentation of a se-

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quence of specimens ranging from the crude to the finished and tested product. In some instances test briquets broken under different conditions were included.

The following figures show the value of cement production for 1902. Figures for the output of 1903 at the time this list was prepared were not available. A recent publication of the United States Geological Survey at Washington shows that Pennsylvania's output in 1903 was nearly a million of barrels greater than in 1902. The value increased from over ten millions of dollars to over eleven millions of dollars. "As a producer of Portland cement Pennsylvania is still in the lead by more than seven millions of barrels; New Jersey holds second place."* The larger part of the Portland cement produced in Pennsylvania is from Lehigh and Northampton Counties:

Pennsylvania \$10,130,432 (P), \$340,669; New York \$1,521,553 (P), \$2,135,036 (N); New Jersey \$2,563,355 (P); Michigan \$2,134,396 (P); Kentucky and Indiana \$869,163 (N); Illinois \$628,244 (P); South Dakota, Missouri and Kansas \$80,000 (N), \$1,017,824 (P); North Dakota, West Virginia and Ohio \$62,055 (N), \$685,571 (P); Georgia \$433,286 (P); Virginia \$51,444

*United States Geological Survey.

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(N); Utah and California \$431,910 (P); Texas \$234,950 (P); Wisconsin \$162,628 (N); Maryland \$150,680 (N); Colorado \$105,016 (P); Minnesota \$67,500 (N).

The value of the slate produced in Pennsylvania in 1903 was \$3,959,906.00. The value of the slate produced in York County, the home of the Peach bottom slate, was \$88,522.00, a slight increase over that of the previous year. Lehigh and Northampton Counties show a decrease in amount of output, but an increase in value over that of 1902. As the value of the total output of the United States in 1903 was \$6,256,885.00, it is seen that Pennsylvania produced sixty-three per cent. of the total.

The importance of this industry in Pennsylvania demanded as comprehensive an exhibit as was possible. An effort was made to have all large slate producers of the State co-operate in an extensive exhibit, which would show all possible varieties and uses of slate. After some time spent in communication with leading slate companies, this method was abandoned and an individual producer was found who agreed to install a complete slate exhibit in accordance with the architectural design which had been prepared for it. It consisted of a pavilion built of slate showing slabs in different grades and varieties of finish, also roofing, curb, black board and marbleized slates, stationary

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basins and tubs for domestic purposes. Separate specimens of slabs in the rough and in process of finish in varying degrees of thickness were also shown.

The entire exhibit was composed of Old Bangor Slate, presented and installed by J. S. Moyer and Company, of Bethlehem, with the exception of a small roof made of Peach Bottom slate. A Gold Medal was awarded to the slate exhibit.

It was designed to make the sand display attractive as well as instructive; to show not only sand specimens, but also the products of sand and stages of manufacture in their preparation. A scheme of installation was prepared, with specifications and drawings, and presented to the largest company of sand workers in the State. This Company was asked to make a collection of materials for the exhibit. They accepted the commission and an especially beautiful display resulted. The sands were shown in stages of preparation; also, various products, which, whether in pressed or cut glass or in the glaze upon porcelain, attested the excellence of the material as well as the skill required for design and execution.

Pennsylvania's glass sands are sought in large amounts by glass and porcelain producers outside of this State. Consequently, the display included specimens of cut, pressed and tinted glass articles and a

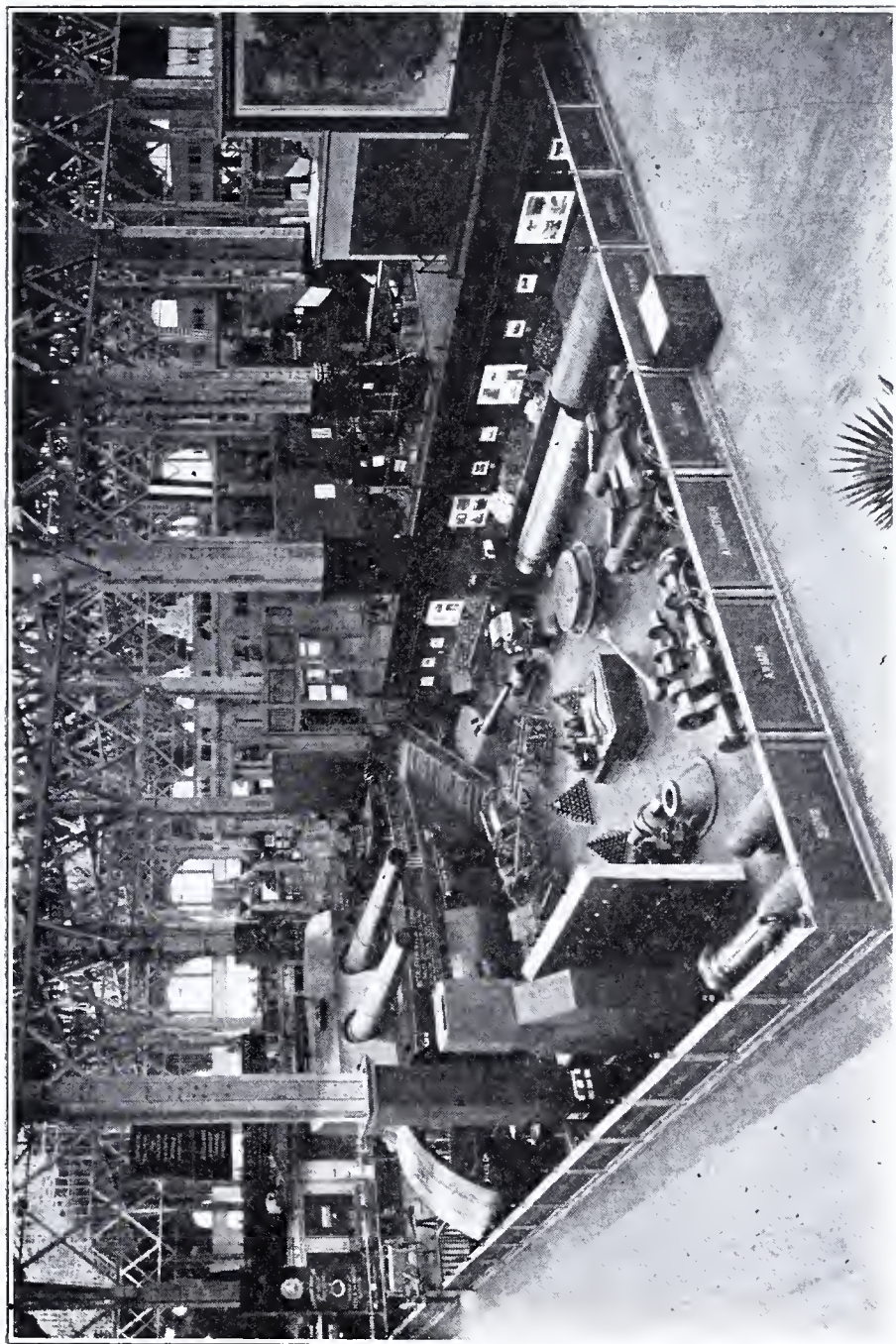
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few porcelains from companies in neighboring States, as well as similar articles of home manufacture, both equally representative of Pennsylvania's resources in the glass sands. The spectator who chanced to belong to the State was gratified in comparing these exhibits to find that Pennsylvania's products yielded in no respects to those of outside producers. The collection was made by H. B. Cochran of the Pennsylvania Glass Sand Company, Pittsburg. A Silver Medal was awarded this exhibit.

The value of the stone producing industry in Pennsylvania is not usually appreciated. It should be understood that though in granites and marbles her output is exceeded by a number of States, in the production of lime-stone and sand stone, she far exceeds any other State in the Union. The value of her output of lime-stone in 1903 was \$5,775,506.00; of sand stone three and one-fourth millions of dollars.

The figures presented in the following table are for the year 1902, showing value of stone, including slate, produced in Pennsylvania, compared with other States, in 1902:

PENNSYLVANIA.....	\$12,589,202	ILLINOIS.....	\$3,254,808
VERMONT.....	5,889,208	INDIANA.....	2,903,284
OHIO.....	5,280,472	CALIFORNIA.....	2,189,148
NEW YORK.....	5,182,850	WISCONSIN.....	1,927,281
MASSACHUSETTS.....	4,443,601	MISSOURI.....	1,911,837
MAINE.....	3,611,140	MINNESOTA.....	1,657,318



BETHLEHEM STEEL COMPANY DISPLAY.

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GEORGIA.....	\$1,577,134	WASHINGTON.....	\$452,988
NEW JERSEY.....	1,536,850	NORTH CAROLINA.....	366,728
MARYLAND.....	1,344,722	UTAH.....	293,153
NEW HAMPSHIRE.....	1,147,097	OTHER STATES.....	281,724
CONNECTICUT.....	1,146,091	DELAWARE.....	276,753
WEST VIRGINIA.....	1,039,898	MONTANA.....	266,927
TENNESSEE.....	1,007,959	ARKANSAS.....	211,195
VIRGINIA.....	979,610	SOUTH DAKOTA.....	197,394
MICHIGAN.....	809,454	NEBRASKA.....	145,641
ALABAMA.....	802,323	ARIZONA.....	110,910
KANSAS.....	776,045	WYOMING.....	97,031
RHODE ISLAND.....	768,437	OKLAHOMA.....	74,741
KENTUCKY.....	722,217	FLORIDA.....	63,571
IOWA.....	665,045	OREGON.....	59,671
SOUTH CAROLINA.....	636,698	IDAHO.....	29,791
COLORADO.....	635,884	NEW MEXICO.....	12,291
TEXAS.....	454,230		

In 1903 Pennsylvania's production had increased to \$13,913,220.00.

In order to secure a full collection of stone specimens, every known stone producer was asked to contribute a cube dressed in accordance with definite instructions. If unwilling to dress the stone, he was requested to ship a rough specimen of given dimensions to a designated stone cutter. In most cases the stones were shipped undressed. The stone producers were perhaps the slowest of all contributors to respond and many of the samples came in unsatisfactory shape; as a result, and on account of the limited time, it was impossible to bring the specimens, when finally prepared for exhibit, into entire uniformity. Many stones were taken from the Pennsylvania State Muse-

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um. A handsome brown stone foundation for the stone, terra-cotta and brick entrance was produced from the Hummelstown brown stone quarries.

Stone Producers who supplied specimens for Pennsylvania's Exhibit, were as follows: D. F. Allison, Howard, Brown Stone; Amy and Company, Greenville, Blue Stone; Avondale Marble Company, Avondale, Statuary marble; Bittinger and Eberly, Bittinger, Limestone; Christian Blernby, Lycoming, Sandstone; D. L. Brinkley, Adamstown, Red sandstone; Brookside Club, Williamsport, Black marble; Millard Car, Lapps, Limestone; C. R. Chronister, New Oxford, Limestone; Conshohocken Stone Quarry Co., Philadelphia, Limestone; Davis and Harris, Rock Point, Sandstone; A. G. DeHuff, Lebanon, Sandstone; Empire Marble Co., Easton, Green marble; Fisher and Son, Perkiomenville, Belgian blocks; Daniel Griggs, Montoursville, Sandstone; D. Gring, Germantown, White sandstone; Fred, Gwinner, Allegheny, Sandstone; Joseph Hartman and Son, Pittsburgh, Sandstone; Winfield Hendricks, Schuylkill Haven, Sandstone; Hesse Hibbard, Lima, Gneiss and granite; Hummelstown Brown Stone Co., Waltonville, Sandstone (Several varieties); R. H. Johnson, Wayne, Trap rock; Samuel J. Johnson, Morton, Granite; Kittanning Brick and Fire Clay Co., Pitts-

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burg, Sandstone; David Knauer, St. Peters, Granite; J. P. and E. A. Knox, Allegheny City, Sandstone; Isaac N. Leiby, Virginville, Limestone; Nathaniel Lightner, Gettysburg, Granite; H. J. McAteer, Alexandria, Limestone; McIlvain and Brother, Bellemonte, Limestone; George D. McIlvain, Bellemonte, Limestone; McManus and Reilly, Philadelphia, Sandstone; George McWilliams, Canonsburg, Freestone; Dr. T. H. Mayer, Gneiss rock; Abraham Meyer, Cogan House, Oolitic limestone; E. S. Morris, Quarry Glen, Blue stone; J. S. Moyer and Co., Bethlehem, Slate pavilion and exhibit; National Cement Company, Pittsburg, Sandstone; Peach Bottom Slate Producers' Association, Delta, Slate; Pennsylvania Marble and Granite Co., Westgrove, Marble and granite; Pennsylvania Railroad Company, Pittsburg, Sandstone; S. C. Platt, Slate Run, Sandstone; Schweyer and Liess, King of Prussia, Marbles; Frank Senger, Erie' Sandstone; James B. Smith, Reedsville, Limestone and black marble; Snyder Brothers, Curwensville, Gray sandstone; H. R. Spahr, Dompit, Limestone; R. S. Squires, Nicholson, Blue stone; H. F. Stark, Greensburg, Sandstone; David H. Stuempfle, Williamsport, Brownstone; Swatara Brownstone Co., Lebanon, Sandstone; David H. Taylor, Freeport, Sandstone; H. D. Tiffany, Nicholson, Blue stone;

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Uniontown Fire Stone Co., Uniontown, Firestone; J. R. C. Walker, Williamsport, Sandstone; George West, Picture Rock, Laurel Run stone; C. K. Williams and Co., Easton, Soapstone; Wilson Bros. and Co., Elwood City, Sandstone.

Among the relief maps reproducing mining regions, a notable and especially fine one, twelve feet by eight feet in dimensions, covered the whole State of Pennsylvania and showed coal measures, the Pottsville conglomerate, oil producing areas, and gas territory. Other relief maps, of smaller size, were reproductions of the floor of the mammoth coal bed in the Panther Creek Basin; of the anthracite coal fields owned and controlled by the Lehigh Valley and other coal companies; of the Mahanoy and Shenandoah anthracite coal basins, showing floor of the mammoth bed in Schuylkill County; of the faults in the Bald Eagle Mountain; of the Cornwall iron mines in Lebanon County and of coal, iron and other areas, of Blair, Bedford, and Huntingdon Counties.

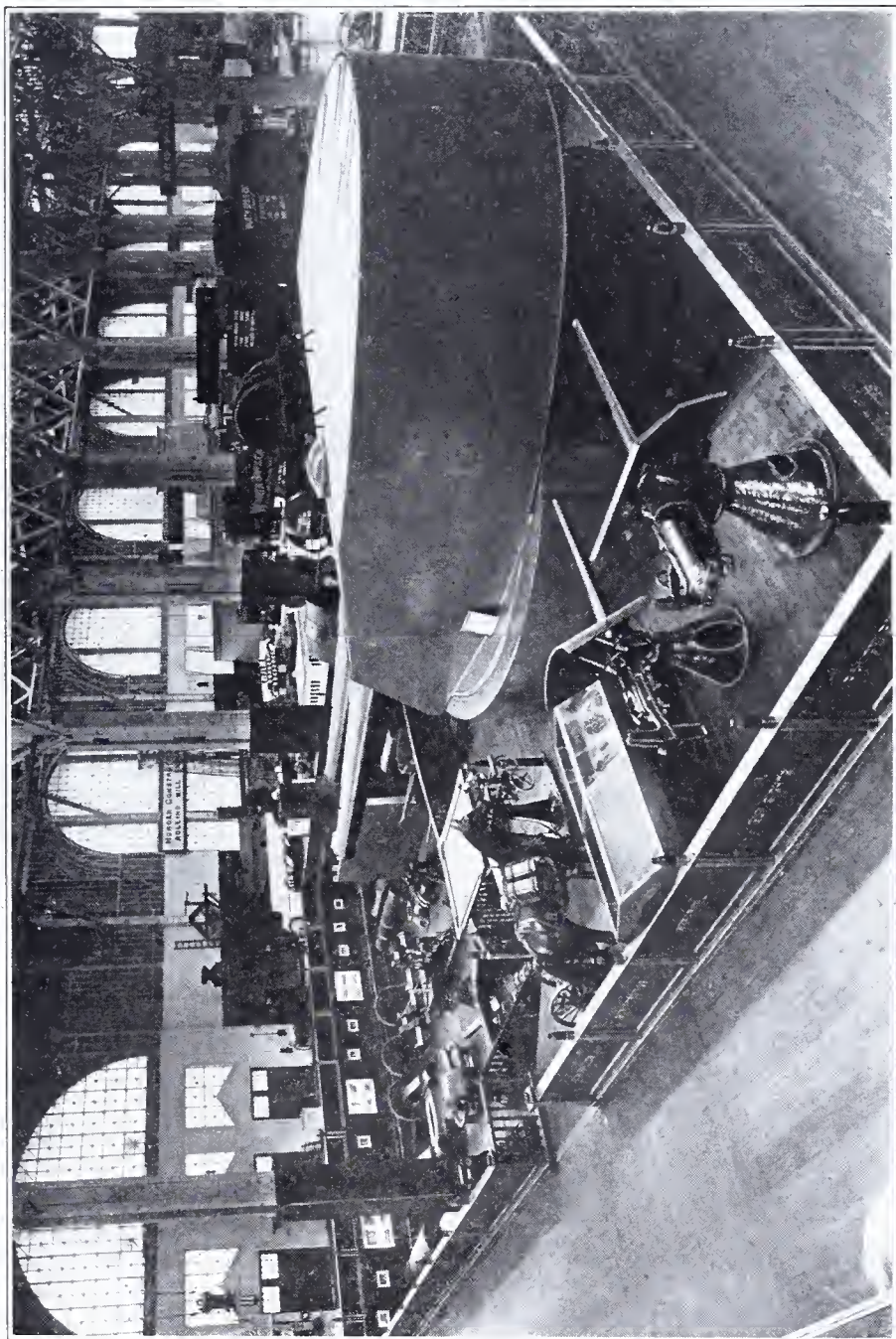
Following is a list of the relief maps exhibited: Relief map of Pennsylvania, showing the coal fields, oil and gas pools, iron ore mines, blast furnaces, oil pipe lines and similar interests. Scale: 2 miles, 1 inch horizontal, Scale 1-126,720 of nature-vertical. Scale 1-24,000 of nature. Geological relief map,

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showing the shape of the floor of the mammoth coal bed in the Panther Creek Coal Basin, near Mauch Chunk. Scale: 800 feet, 1 inch. Geological relief map of the Mahanoy and Shenandoah Anthracite Coal Basins, showing the contour of the floor of the mammoth bed in Schuylkill County, Pa. Scale: 1,600 feet, 1 inch. Geological relief map of parts of Blair, Bedford and Huntingdon Counties, Pa. Scale: 8,000 feet, 1 inch. Geological relief map, showing faults in Bald Eagle Mountain, Pa. Scale: 1,600 feet, 1 inch. Relief map of Cornwall Iron mines, Lebanon County, Pa. Scale: 200 feet, 1 inch. Relief map of the anthracite coal fields, showing boundary lines of the properties of the different coal companies. A Gold Medal was awarded for the collection of relief maps.

Photographs and transparencies illustrated the different mining interests of the State. They included scenes from coal measures, ore mines, sand beds, stone and slate quarries, and were designed to illustrate methods of preparing materials for the market as well as the geological formations in which they occur.

The publications of the Geological Survey, including a complete set of bound volumes, maps, charts and statistics, were given due prominence. In the preparation of the statistical matter and charts, the



FEATURE OF BETHLEHEM STEEL COMPANY'S EXHIBIT.

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services of Mr. Wm. W. Ruley of Philadelphia, Pa., were secured. Mr. Ruley has had the preparation of statistics for the geological survey and consequently his work could be absolutely relied upon for accuracy.

The central feature of the exhibit, an octagonal shaft about thirty feet in height, surmounted by an ornamental frieze, dome and golden eagle, bore in gold lettering statistics relating to the most important productions of the State during the year of 1903. Comparative figures upon charts and maps showed the relative amounts of the mineral resources of the different States. An interesting and striking graphical presentation of the subject of Pennsylvania's original resources in anthracite coal, its production in the past and probable future output was made by a series of black wooden cubes of graduated sizes. Statistical figures in gold lettering upon the sides of the cubes explained their significance. A Gold Medal was awarded to this department of the exhibit.

The methods of display for all exhibits having been definitely decided upon, the cases and pedestals were designed by the architects to meet their requirements. The materials called for were mahogany and plate glass and the best quality and workmanship only were accepted. The mounting of an exhibit, when

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compared to the exhibit itself, becomes a subordinate consideration, yet the well-finished, handsome and suitable accommodation provided in Pennsylvania's Exhibition, for every product displayed, added appreciably to the value and dignity of the whole. The photographs, transparencies, relief maps, as well as the models, were prepared, in every instance, by experts in their departments of work. No labor or expenditure was spared in the effort to secure the best workers, the best materials, the most effective presentation. A Grand Prize was awarded Pennsylvania's collective mineral exhibit.

Professor Reber concludes his report with the following: "In the accomplishment of any undertaking, much may be made or marred by favorable or unfavorable relations between those in authority and those who do the work. The recognition of this truth leads me in closing to beg to be permitted to mention my appreciation, first, of the helpful and uncritical attitude of the Commission in general toward my efforts; second, of the ready encouragement and frequent assistance received from Cyrus E. Woods, Chairman of the Mining Committee; and, third, of the cordial support and constant co-operation experienced from the Executive Officer in every phase of planning for, arousing interest in, and carrying for-

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ward, the making of Pennsylvania's Exhibition in Mines and Metallurgy."

The exhibit of the Bethlehem Steel Company of South Bethlehem was located in the Mines and Metallurgy Building, and occupied a space of one hundred and twenty feet by sixty-two feet directly fronting the North East Entrance. Two-thirds of the space, an area of eighty feet by sixty-two feet, had its floor level below that of the floor of the Building, it being necessary, owing to the great weight of many of the exhibits, to set them practically on the ground. In this space were exhibited, iron, carbon steel and nickel steel castings, finished guns and carriages which were designed and built by the Company for land and naval service, and large and small carbon and nickel steel forgings of various degrees of finish, ranging from the forging as coming from the smith shop to the finished material made to the highest degree of accuracy. There were also exhibited in this space tested armor plates, and a full sized model of a finished armor plate and of an ingot of the size required in its manufacture.

An exhibit showing the operations required to make a finished armor plate from the ore, the amount as well as the nature of the materials consumed and, also, the time taken by each operation, was placed on stands which extended along the walls of the de-

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pressed floor space, and on the walls were photographs showing views of the Company's plant and of manufactured material, including views of forgings, castings, guns, armor plates, and machines.

Beyond the depressed position, toward the center of the building and on the main floor level, was erected a battleship turret with two 12-inch guns with a rapid ammunition handling device, all being capable of operation by electric power,—and on the floor space around the turret were placed lighter ordnance material, ammunition, and small castings and forgings. The exhibit altogether was rated as one of the best four in the department, and was awarded a Grand Prize.

In this department, occupying a portion of Block 41, the Pittsburg Chamber of Commerce made an Exhibit intended to illustrate the importance of Pittsburg as an industrial center. Relief maps, charts and statistics demonstrated that the City has a greater production of steel, iron, plate glass, pickles, petroleum, steel cars, window glass and table ware, coal, coke and corks than any other city. Its great tonnage was also shown.

Other Pennsylvania Exhibits in the Mines department were found in nearly every classification. There were illustrations of the workings of mines, ore beds

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and quarries, of the natural mineral waters of the State, a model of a modern bituminous coal mine, coal mining village, and coal mining machinery installed by the Pittsburg Coal Company, and many Exhibits showing the equipment and demonstrating the process of handling and smelting ores. In the metal pavilion and in the outside exhibit there were also many Pennsylvania displays.

FISH AND FISHERIES EXHIBIT.

PREPARED AND INSTALLED BY COMMISSIONER MEEHAN—THE ATTENTION GIVEN BY PENNSYLVANIA TO FISH CULTURE AND PROTECTION—A VALUABLE INDUSTRY FULLY ILLUSTRATED AT THE EXPOSITION—DIVISION OF THE EXHIBIT TO COVER ALL GROUPS, WITH LIVE FISH THE PROMINENT FEATURE—DIFFICULTY OF MAINTAINING LIFE IN THE AQUARIA OWING TO IMPURITY AND HIGH TEMPERATURE OF THE WATER—INTERESTING MOUNTED SPECIMENS—A WATERFALL AND POOL, WITH A DEMONSTRATION OF THE PROCESS OF PROPAGATING TROUT.

FOR its Fish Exhibit Pennsylvania was allotted space in Blocks Three and Six at the east end of the Fish, Game and Forestry Building, covering a floor area of 3972 feet. It was one of the most eligible locations to be had, being immediately reached upon entering from the main doors on the north as well as upon the south. For the purpose of making an appropriate display the Pennsylvania World's Fair Commission set aside ten thousand dollars, and the responsibility for the work of collecting and installing the exhibit was placed in the hands of William E. Meehan, Commissioner of Fisheries of the Commonwealth. He took up the labor with enthusiasm and was the only one of all the heads of Departments of the State Government to undertake such a task.

Pennsylvania had much to display, both in the

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variety of fish found in its waters and in the methods adopted by the Commonwealth for the promotion and preservation of the fish industry. Ours was not the first State or Commonwealth to engage in fish cultural work and in a systematic effort in other ways to increase fish life in the waters, nevertheless, when it did begin it speedily took a foremost rank among its sister States. For the last ten years it has annually planted about one hundred million young and mature fish, and its work in this respect is nearly one-eighth of the fresh water fish work performed by the United States Government.

The fish industry of Pennsylvania is not as large or important as some of the Atlantic Coast States, as there are no salt water fisheries within its borders. Notwithstanding this handicap the value of the fresh water industry of Pennsylvania is not to be despised. The fresh water industry in Pennsylvania is divided into two classes; the angling and commercial fisheries. Unfortunately there are no figures available to show the extent of the angling interests, but it is generally conceded to be nearly, if not quite equal to that of the commercial. As far as can be ascertained the men who catch fish for the market realize between a million and a half and two million dollars a year, making the value of the fish by the time they reach the con-



WILLIAM E. MEEHAN
STATE COMMISSIONER OF FISHERIES.

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sumer between three and four million dollars. Hence, assuming the million and a half dollars to the fisherman as correct and that the moneys received from anglers to be approximately the same, we have the total value of the fish industry of Pennsylvania at least three million dollars a year. The total cost to Pennsylvania for its fish cultural and fish protective work is about twenty-two thousand three hundred dollars a year. To this amount might be added about five thousand dollars, which is received from license fees and fines from illegal fishermen, which moneys under the law must be devoted to fish propagation and protection. Hence, it will be seen that the financial returns to the people are huge in comparison with the expenditure by the Commonwealth, the latter being less than one per cent.

In conducting its fish cultural work, Pennsylvania pays greater attention to its commercial fisheries than it does to the angling interests, although it recognizes the vast importance of the latter and spends about the same sum of money on each. Of the average one hundred million fish hatched and planted prior to 1904 only about four million were, what under the law are termed, game fishes. The remainder were, according to the legal term, food fishes with the exception of one, which is popularly known as both a food and game

FISH AND FISHERIES EXHIBIT.

fish, namely: the pike-perch, or Susquehanna salmon. According to an Act of the Legislature, approved May 29, 1901, the following fishes are specifically declared to be game fishes, to wit: Salmon, brook trout, and all other fish belonging to the family of salmon or trout; black bass, green or Oswego bass, crappie, grass or strawberry bass, white bass, rock bass, blue pike, pike-perch or Susquehanna salmon or wall-eyed pike; pike, pickerel, muskallonge and sun fish. The food fish specifically named are shad, white fish, herring, lake herring, Cisco herring, alewife, sturgeon, striped bass or rock fish. The yellow perch, white perch, eel, cat fish and carp are not classed specifically under either heads, but the methods of their capture are specifically provided for.

Until 1904, in order to carry on its fish cultural work, Pennsylvania operated four hatching stations, one is located at Erie, one at Corry, also in the north-western part of Pennsylvania, a third at Bellefonte in Centre County—to take the place of a hatchery previously located near Allentown, Lehigh County—and the fourth at Bristol on the Delaware. At the last session of the Legislature in addition to the Bellefonte hatchery to replace the one at Allentown, which was on rented ground, a fifth hatchery was authorized to be established in eastern Pennsylvania, for

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the propagation of game and other fishes. It was also found expedient for the officials directly in charge of the work of fish culture to order the removal of the Bristol hatchery to Torresdale, Philadelphia County, in order to permit of an expansion of work.

The hatchery at Erie is exclusively for the propagation of lake fishes, including white fish, lake herring, blue pike, pike-perch, and yellow-perch. The hatchery at Corry was designed primarily for the hatching of brook trout, but owing to the rapidly growing necessities of the Commonwealth, lake trout, for Erie and the deep water lakes of the State, was added. Black bass and yellow perch are also hatched at that hatchery. The Bellefonte hatchery is for the propagation of trout and black bass only. The hatchery at Bristol, or as it will be at Torresdale, is for the hatching of shad and other river fishes. The proposed hatchery at Wayne is for nearly all the game fishes named in the Act of the Legislature quoted above and one or two other minor fishes in large quantities. Although one hundred millions of fry had been hatched and planted annually, the number does not indicate the full capacity of the State hatcheries. The Erie hatchery, for example, has a present capacity for about two hundred million, and over one hundred and thirty million have actually been hatched there in a single

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year. The capacity for trout at the Corry hatchery is about six million, including lake trout. The Bellefonte hatchery, about ten million of trout, and the Bristol hatchery about twenty million of shad. The reason that full capacity is not reached at Erie is that, hitherto, there has been an inability to secure the full supply of necessary spawn.

It is estimated that at the present time there are nearly one hundred anglers to one who whipped the streams of the Commonwealth thirty-five years ago, yet there is abundant evidence to show that through the fish cultural work of Pennsylvania, the supply of trout in the well-known waters is fairly well maintained, and many other game fishes, notably the black bass, are abundant in all suitable waters as a result of Pennsylvania's work. The fishermen on Lake Erie within the jurisdiction of Pennsylvania realized over three hundred thousand dollars, or about one-third of the industry of the entire lake. The three hundred thousand dollars is nearly double the value of the industry at Erie twenty-five years ago. The fishermen unreservedly attribute the increase of the Lake Erie fisheries to the joint work of Pennsylvania and the United States Government. The value of the shad industry in the Delaware River increased from eighty thousand dollars in 1880 to an average

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of over a quarter of a million dollars since 1890. This increase was traced directly and beyond dispute to the joint work of Pennsylvania and the United States Government.

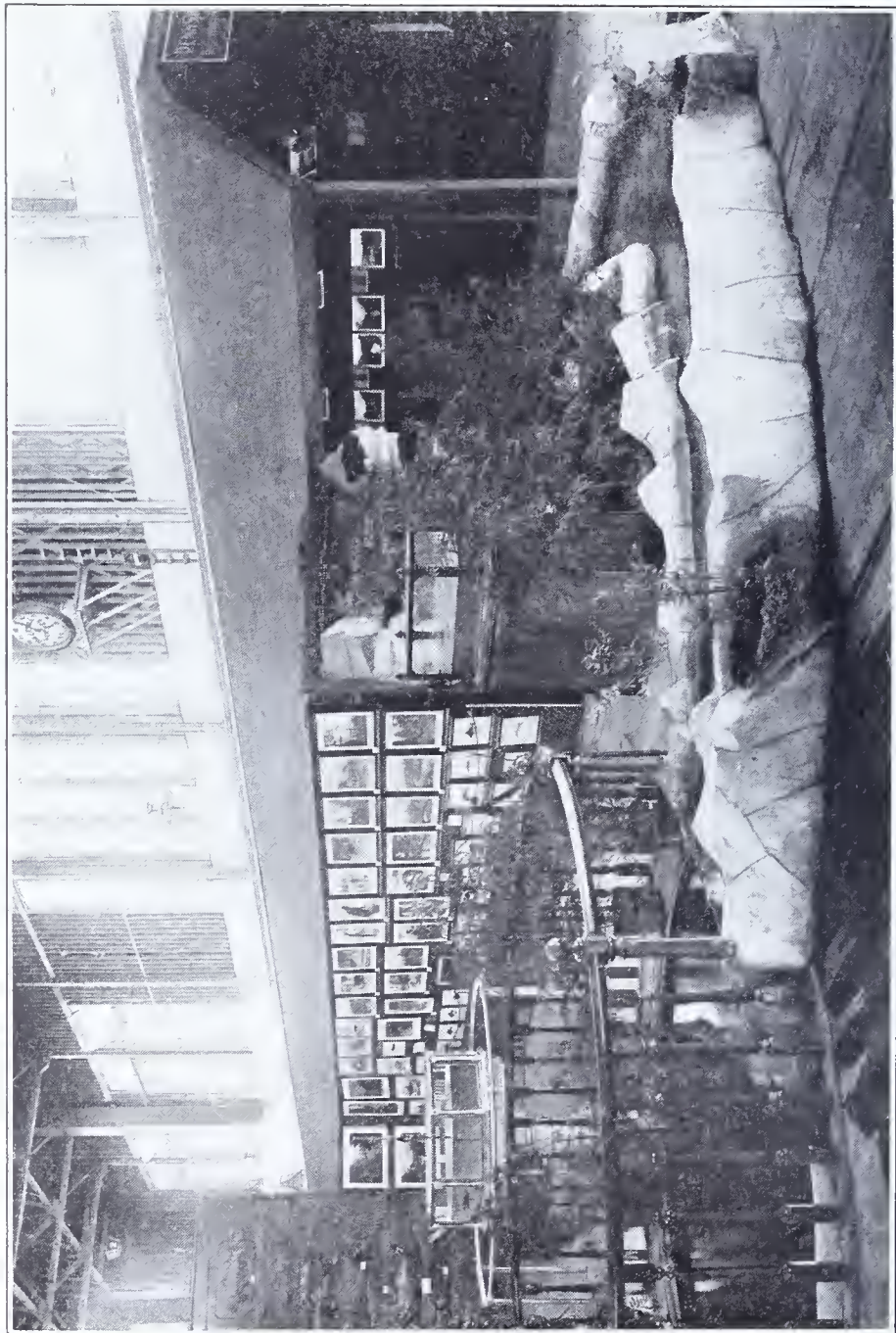
From 1870 until June 1, 1903, the fishery work of Pennsylvania was intrusted to a Fish Commission, a body comprising, at first, one man, later three men, and finally six men. In June, 1903, the Commission was replaced by a Department of Fisheries, the head of which is termed the Commissioner of Fisheries. In establishing a Department of Fisheries, Pennsylvania was the first Commonwealth or State to recognize the fact that the fishery industry was on a plane with the other most important industries, and worthy a place in the State Cabinet. The Fish Commissioners, under the Act preceding the establishing of the Department of Fisheries, received no compensation for their services and held an uncertain place in the official machinery of the Commonwealth, although the importance of their work was admitted. The functions of both the Fish Commission and the present Department of Fisheries embrace the protection of fish and the enforcement of all the laws relating to fish and fishing, as well as fish culture. In order that the Department of Fisheries may be able to perform its fish protective work in the most efficient manner, the Leg-

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islature has given it extensive powers. It is authorized to appoint both salaried and unsalaried fish wardens or fish police, and it has made all the constables in the State fish wardens, ex-officio, and placed them under its control. For the purposes of fish protection it is also given authority over sheriffs, and all the policemen and other peace officers in the Commonwealth and a failure on the part of any of these officers to obey the orders of the Department in the enforcement of the fish laws subjects them to heavy punishment.

The laws of Pennsylvania relating to fish cover three classes of waters, namely: Those which are wholly within the boundaries of the Commonwealth; secondly, that part of Lake Erie within the jurisdiction; and third, the Delaware River. In each, the aim of the legislature has been to give the greatest latitude and encouragement to both angling and commercial fishing consistent with reasonable protection and a steady increase or maintenance of fish life. Under the circumstances it is not surprising that taken as a whole the fisheries of Pennsylvania are steadily increasing in value every year.

Among the fishes which at the present time rank highest from a commercial standpoint are the shad and herring in the Delaware and Susquehanna Rivers, the lake herring, blue pike, pike-perch, and white



WATERFALL, AND POOL, PENNSYLVANIA FISH EXHIBIT

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fish in Lake Erie. The value of the herring industry in the Delaware and Susquehanna Rivers is many thousands of dollars annually. Last year more than five million pounds of lake herring were caught by the fishermen belonging to the city of Erie. Other fishes which now are regarded as of growing importance from a commercial standpoint are the yellow perch, lake and white catfish, lake trout and striped bass, commonly called rock fish. Many thousands of dollars are invested in the sturgeon industry on the Delaware River, and it is a fish equally sought for in Lake Erie. Unfortunately this industry is rapidly becoming extinct, because of the difficulty of artificially propagating the sturgeon.

Pennsylvania is rich in its supply and variety of game fishes. The two which undoubtedly lead are the brook trout or charr, and the small-mouth bass. The first is to be found in nearly all the mountain streams and hundreds of meadow streams in Pennsylvania, and the latter in every large rock bottom warm water creek and river and in all the mountain lakes. So famous are Pennsylvania's trout and bass streams that thousands of anglers come in from other States every year during the open season for the sport of catching them. Nearly one-half the revenue of the people in several counties is derived directly or

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indirectly from the trout and bass angler. There are several spots on the Susquehanna River in which the hostleries are almost entirely dependent on the visiting angler after black bass and the pike-perch commonly called Susquehanna salmon.

The establishment of fish cultural work by Pennsylvania was due to a general depletion of the streams by destructive methods of fishing prior to 1870. In the early days of the Commonwealth the waters thereof literally teemed with valuable game and food fishes. The early settlers without any regard or thought of the rights of posterity inaugurated a period of reckless destruction. They made use of every device, destructive and otherwise, known in Europe and in addition adopted those in use by the Indians. They kept for food what they could use of the mature fish and used the rest for compost. The immature fish caught in the nets and other devices they threw upon the shores of the rivers and lakes and allowed them to rot. Later men built manufactories along the streams and allowed poisonous refuse to flow freely therein. By 1870 there were hundreds of streams denuded entirely of fish and plant life and hundreds more with scarcely any fish in them. The work of fish culture by Pennsylvania and the establishment of the Fish Commission was begun in response to a

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popular demand, but the necessary system of protection which was inaugurated met with violent opposition, and for many years the fish laws were nearly dead letter laws. But within the last decade, public sentiment has changed. The great mass of the people have come to recognize that protection is just as necessary a part of the work of the State as fish culture, and the reasonableness of the laws as a whole is generally admitted. The change of sentiment is so marked and the value of the fish industry, both sporting and commercial, has been so universally recognized, that from all quarters of the Commonwealth there comes a strong demand for more rapid expansion in fish cultural work and a more hearty support of the laws relating to the protection of fish.

The State's Fish Exhibit at the Exposition, illustrating the whole of the growing industry, was divided into five groups, namely: Live Fish; Mounted Fish, Birds and Mammals; Photographs and Water Colors of Fishery Subjects; Illegal Confiscated Devices for Catching Fish; Angling Materials. Naturally it was designed that the Live Fish Exhibit should be the prominent feature. Thirty-five aquaria were placed on the two sides of the main aisle, running through the Building at the east end. In order that the fish might be shown to the best advantage, a grotto was

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built in such form that only the front glass of each aquarium was displayed. As thirty-five aquaria would not exhibit one-tenth of the species of the fish found in the waters of Pennsylvania, it was decided to display prominent examples of various groups. As many of the game fish as possible; the leading food fishes; the principal inferior fishes commercially valuable as food; representatives of types which have no value either for game or food purposes and which were distinctly destructive; also minnows.

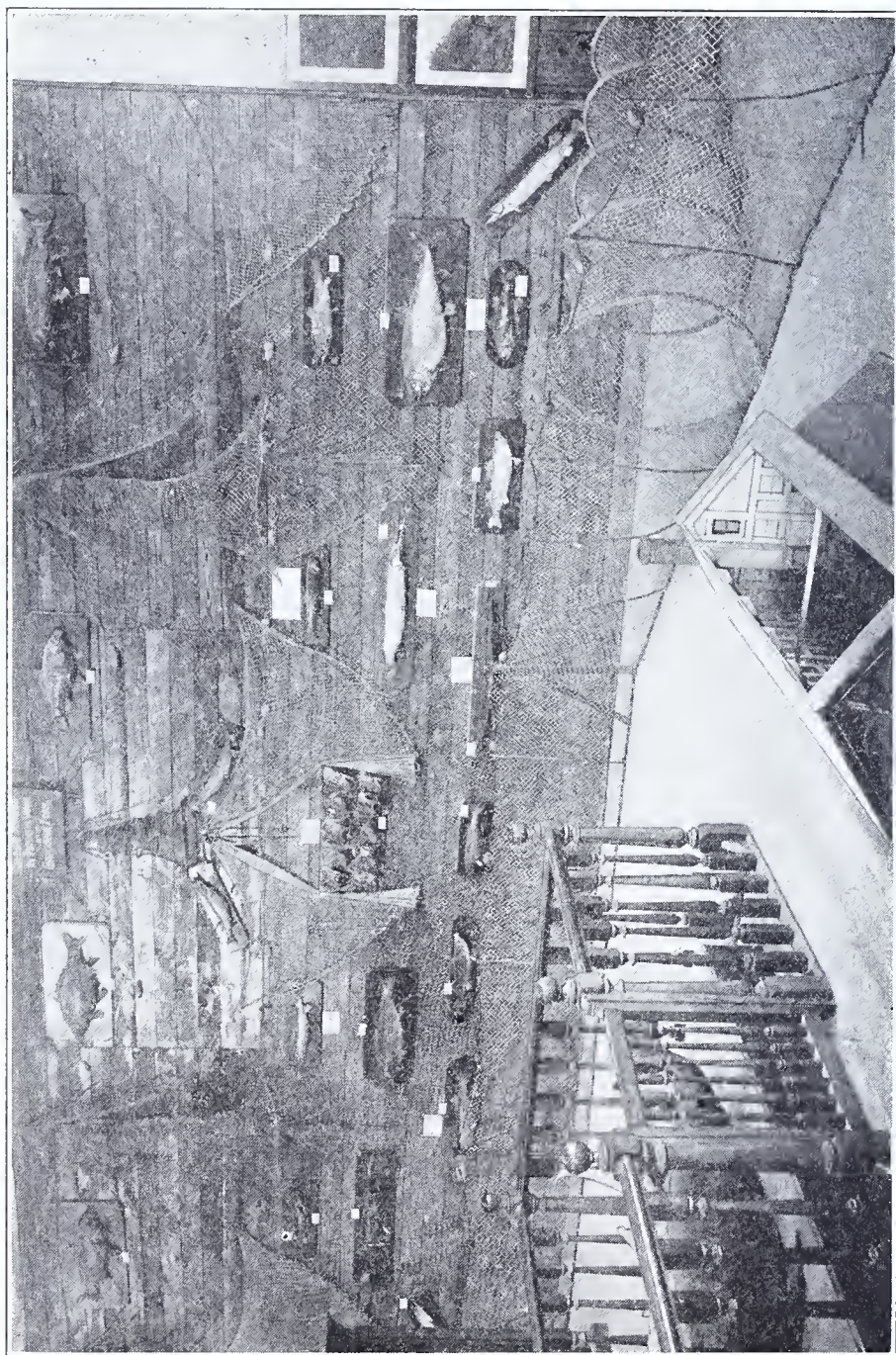
Very great difficulty was experienced in maintaining the live fish exhibit, due to no fault of the Department of Fisheries of Pennsylvania, or of the State Commission, but entirely to the character of the water furnished by the St. Louis Exposition Company. It was at first so extremely turbid that the fish were completely hidden from view. Later attempts to clarify it by the use of lime poisoned it so that the delicate fishes could not possibly survive. One car-load of live fish was sent from the State, however, to be ready at the opening of the Exposition. It contained thirty-six species of fish, including the various forms of trout, all the known species of bass, except the striped bass, the leading lake fishes and numerous species of lesser importance. Owing to the large percentage of alum, together with some lime in the water,

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the trout and all the delicate fishes died within a few days and the mortality was so great among the other fishes that the aquaria were soon depleted.

With the consent of Dr. Tarleton H. Bean, Director of the Forestry, Fish and Game Department of the Exposition, Leon Weston, an assistant in the care of the Pennsylvania exhibit, took charge of the filter plant and reduced the amount of alum to so small a proportion that live fish could exist when the water was at a normal temperature. Encouraged by this fact a second carload of fish, embracing twenty-two species, was sent from Pennsylvania the last of April. When they arrived the temperature of the water was found to be seventy-four degrees, entirely too high for the use for which it was designed. As before, the trout and the more delicate lake fishes died at once. Fungus attacked the other fishes, and it was necessary to give them salt baths twice a day. However, this only prolonged life for a short time and by the middle of June nearly all the tanks were again empty of live fish.

The failure to maintain the aquaria up to this time was a matter so serious that a persistent complaint was made to the Exposition authorities respecting the impurity and high temperature of the water, both of which it was possible to remedy with reason-



A DETAIL OF THE PENNSYLVANIA FISH EXHIBIT.

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able enterprise and at no great cost. Nothing, however, was accomplished until sometime in August when the Exposition Company provided for refrigerating the water and a reduction of its temperature to a normal condition. Encouraged by this favorable state of affairs, a third carload of fish was forwarded from the State early in August and the aquaria again stocked with life, and from that time until the end of the Exposition the display was pretty thoroughly maintained, in spite of the many drawbacks constantly arising. The Live Fish display was naturally the most attractive of the exhibits, which fact was testified to by the great crowds of people always gathered in front of the aquaria, at times so numerous as to make passage along the aisle difficult.

At the lower end of the grotto a pretty waterfall modeled after some of those in the northeastern part of Pennsylvania was erected. From it there flowed a stream of water, emptying into a large pool in another part of the exhibit. In the pool were placed large specimens of the commoner types of fishes, for here, as in the aquaria, only the commoner types, like catfish and carp could exist in the high temperature of the water.

The Still Exhibit was one of great beauty and it is difficult to name which feature was the more nearly

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complete. The mounted groups were separated into two divisions: mounted fishes of the larger size, the kind which the angler declares always gets away, and the mounted specimens of birds and mammals, which prey upon fishes. The former were located in three different places throughout the exhibit. One portion, consisting of large fishes covered with convex glass and framed, were hung on the back of the large case in which were the mounted mammals and birds. There were also ten pound trout, large shad and other food and game fishes. On a high wall were placed fishes too large for convex glass and these were mounted on panels and arranged artistically among the group of confiscated nets, such as are illegally used for fishing. A third and still larger group of fish, too large even for panels, including a sturgeon and porpoises, were placed upon platforms with a rail enclosure on the floor. The mounted specimens of birds and mammals were very complete, consisting of about fifty-six specimens. Even the house cat and sewer rat were not omitted. The animals and birds belonging to this group were not placed in stilted fashion on stands, but arranged in natural, life-like positions, either flying, on trees, on the ground and around bodies of artificial water. The case containing these specimens was twenty feet long, six feet wide and eight feet high.

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The water color drawings of fishes numbered nearly three dozen and most of them were loaned by the Pennsylvania Fish Protective Association of Philadelphia, one of the oldest and most influential of the kind in the State of Pennsylvania. In addition, there was a series of large photographs, illustrating the propagation of brook trout as carried on by the Department of Fisheries. The Corry hatchery at Corry, Pennsylvania, was used for this demonstration. One photograph showed the hatching house, another the ponds, another the butcher shop where the feed is ground for feeding the fish, another displayed the fish splashing in the water, another showed the net being placed in the pond to take the fish out for spawning purposes, while another showed the taking of the eggs from the fish, cleaning of the eggs, the hatching of the trout, and in fact the entire process was graphically displayed in the photographs to the very planting of the little fish in the streams. It is a unique story which attracts the attention of fish culturists.

The greatest interest was probably manifested in the exhibit of legally confiscated devices for catching fish. They were chiefly nets, draped in artistic fashion against a high board wall, so decorated as to represent an ordinary fence. Among them, as before related, were placed fish on panels, which added ma-

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terially to the general effect. Every net displayed had been fished in Pennsylvania waters and confiscated because improperly used, and every owner had been compelled to pay a fine for the illegal use thereof. There were seines of different meshes, gill nets, fyke nets, dip nets, cast nets and a huge trap net, the walls of which formed a fence and debarred visitors from approaching too close to the high fence and the water color drawings. It was the only exhibit of its kind in the Exposition, and apparently proved to be one of the most attractive.

The angling devices were placed in a handsome glass case, situated near the mounted specimens of bird and mammals which prey upon fishes. A noteworthy feature of the exhibit was the fact that everything displayed is of direct use to the anglers. There was nothing fanciful or lavishly excessive in this display, however, it having been a complete demonstration of the entire outfit of the angler who takes pride in having fine serviceable tackle. There were trout rods from three and one-half ounces to four ounces in weight; light-weight casting rods and rods of different types, useful in Pennsylvania streams. The leading types of reels were displayed, trout and bass flies; hooks, lines, landing nets and every other imaginable part of an angler's equipment. The col-

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lection was loaned by E. K. Tryon and Company, sporting goods dealers, of Philadelphia.

In addition to the objects enumerated there were five handsome water color drawings of fishing waters in Pennsylvania, loaned by Frank B. Taylor, a Philadelphia artist; the model of number one house at Corry; the model of Rodger's fishway, and fifty transparencies of Pennsylvania's fishing waters, comprising exquisite examples of photographic art. They represented scenes on the Delaware, the Schuylkill, the Wissahickon, the Susquehanna, the Juniata and many well known trout streams as well as some of the Mountain lakes of Pennsylvania. The photographic transparencies were arranged above the aquaria and in the roof of the grotto. The exhibit as a whole was singularly complete and undoubtedly the largest of its kind in the Forestry, Fish and Game Building.

While it was undoubtedly a great disadvantage that the live fish exhibit was maintained with so much difficulty, and through some weeks of the Exposition, rather indifferently, other states suffered to even a greater extent, and the fact remains that during most of the time of the Exposition, Pennsylvania was the only State that had live fish in its display, outside of the United States Government.

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To the Pennsylvania collective Exhibit in this department a Grand Prize was awarded, and Gold Medals each for angling appliances, mounted specimens, and a notable display of photographs of live wild animals. These were all the awards possible to obtain under the classification.

THE AGRICULTURAL DISPLAY.

LACK OF SPACE HAMPERED PENNSYLVANIA IN ITS FARM PRODUCTS DISPLAY--SAMPLES OF THE BEST PRODUCTS BROUGHT OUT TOGETHER WITH A DEMONSTRATION OF THE THEORY OF AGRICULTURE--FINEST SHOW OF WOOLS AND TOBACCO MADE AT THE EXPOSITION--ATTRACTIVE SCIENTIFIC EXHIBIT OF BIRDS AND MAMMALS IN THEIR RELATION TO FARM INTERESTS--NATIVE GRASSES OF THE STATE--PENNSYLVANIA FARM HOMES--LARGE NUMBER OF PRIZES AWARDED--WHAT WAS DONE IN HORTICULTURE--AN EXCELLENT AND WINNING DISPLAY OF LIVE STOCK.

THE Palace of Agriculture was the largest of all the Exposition buildings. It was built upon a site sixty feet above the level of the greater portion of the grounds of Forest Park, and terraced on three sides, presented an imposing appearance and afforded a general view of the activities of the Exposition in nearly every direction. It covered a floor space of approximately twenty-three acres with nine miles of aisles. In this immense structure were displayed the agricultural products, not only of the United States, but of foreign countries. These were so arranged by a system of classification that it was possible for those engaged in agriculture and interested in such demonstrations to compare notes and study processes of inestimable value. The sections through the central portion of the Build-

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ing had been reserved for special displays of the more important crops of the United States, including corn, cotton, tobacco, the straw-growing cereals and sugar, the arrangement being such as to illustrate the whole progress of cultivation, including the tools and implements used in the preparation of the soil, in the harvesting and in the transforming or the manufacture of these crops into marketable products and their by-products. Never before in the history of expositions had so complete and comprehensive a demonstration of agriculture in all its features been undertaken.

Pennsylvania took up the work of preparing its exhibits at so late a day that it was embarrassed in its application for a suitable amount of space in a desirable location. Tentative plans had been formed to suit an allotment of space made in September, 1903. This allotment was, however, soon thereafter changed to an entirely different location and still further changed before the plans then prepared could be adjusted. The State finally received, but not until within ten weeks of the opening of the Exposition, an allotment of Block 77, most eligibly located near the main east entrance of the building. It contained, however, but three thousand six hundred and forty square feet of floor space, whereas, the plans for the State's exhibit had been made on a much more comprehensive scale. In spite of protests

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that this block was not sufficient for the proper development of a Pennsylvania agricultural exhibit, the Commission was informed that it was fortunate to be able to secure so much and in so desirable location.

This very late allotment made another change of plans necessary, and under all the disadvantages encountered in this way, it is really surprising that those in charge were able to get the display installed as they did and be substantially ready on the opening day of the Exposition.

The Pennsylvania space was joined on the east and south by the hundred thousand dollar exhibit of Missouri; on the north by the fifty thousand dollar exhibit of Cal-



JOHN A. WOODWARD.

ifornia and on the west by the block accorded New York, whose exhibit was not a display of the agriculture of the State, but consisted almost wholly of canned and bottled products.

In the preparation and installation of an exhibit to represent the great agricultural interests of Pennsyl-

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vania, it was necessary that it should be immediately directed by some one having an intimate knowledge of the State's resources and organizations in that branch. For this reason the Secretary of the State Department of Agriculture was early requested to take entire charge of the work. This he felt it impossible to do, and so informed the Executive Officer, though expressing his willingness to aid the Commission in any way that he otherwise could. The question of selecting suitable men, therefore became the serious and careful consideration of the Commission's committee on Agriculture, consisting of Frank G. Harris, Chairman; E. B. Hardenbergh and Hiram Young, and in August, after having had for some time several names under consideration, the Committee by unanimous vote decided upon the selection of John A. Woodward, well known as a farmer, a member of the Board of Trustees of the Pennsylvania State College and of the State Board of Agriculture, who had the additional recommendation of an experience in the preparation of an agricultural display for the State at the Columbian Exposition in Chicago, 1893

The time now was short for such an important undertaking. Much of the harvest of the year which it would be necessary to draw upon for many features of the exhibit was over, and it was therefore, impossible to secure all that was desirable for the kind of collection in-

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tended to be made. Without discouragement, however, the work was taken up with energy. The limited amount of space accorded the exhibit put it out of the question to display the products of the State in great bulk; and the plans, therefor, embraced largely an illustration of the theory of agriculture as practiced in Pennsylvania, with the choicest and best samples of products that could be secured. The general scheme for installation having been proposed and agreed upon, the plans were worked out by Edward Hazlehurst, a well known architect of Philadelphia, to whom great credit is due for the neatness and beauty displayed in the general equipment and finish.

The enclosing structure consisted of show-cases three feet high and two feet wide, with plate glass tops and a finishing rail of brass which was continuous for the entire two hundred and two feet, except at the entrance openings. On every side of the four corners stood a massive paneled post, surmounted by a glass sphere sixteen inches in diameter, filled with certain farm products similar to those shown in the adjoining glass cases. Centrally in the north half of this space stood a pagoda seventeen feet square and fifteen feet high, formed of heavy keystone shaped structures, joined at the corners by heavy curved beams, each of which supported a bronzed

PENNSYLVANIA AT THE WORLD'S FAIR.

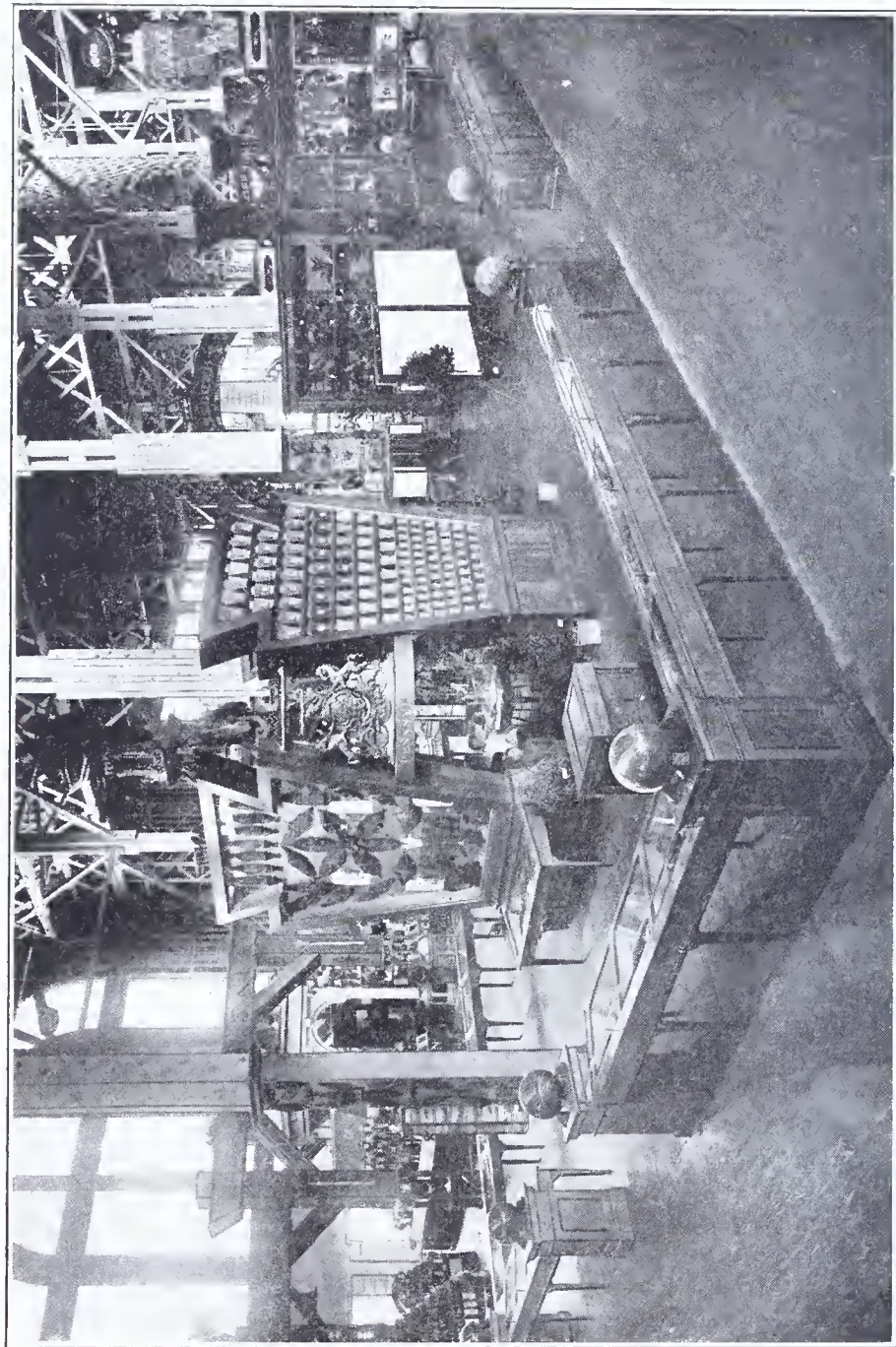
model of the State coat of arms. These keystones, together with all the other furniture of the installation, were constructed of heavy cabinet-finished oak. Upon two of these keystones which faced east and west were the grains and seeds exhibited in keystone shaped glass jars, while corn was shown in rows of ears across the side which faced south. This display of cereals and seeds was awarded ten Silver Medals and three Bronze Medals.

Upon the fourth and north face of the Keystone were shown specimens of the fine tobacco for which Lancaster County is famed. The entire tobacco display was grouped in this section of the exhibit. The show cases in the northwest corner all contained samples of tobacco in various forms. The tobacco shown was all grown in Lancaster County, representing the particular crop which constitutes the basis of her justifiable boast of being the largest agricultural county in the United States. The material for the exhibit was furnished through the enterprise of the Lancaster Leaf Tobacco Board of Trade, among whose active members are J. H. Weaver, M. Rosendahl and Company, Kramer and Goldberg, Samuel Seisel and William De Haven and Company; also, the Lancaster Leaf Tobacco Growers Association, prominent among whose members are M. L. Greider, John R. Bricker,

THE AGRICULTURAL DISPLAY.

and George Hibshman. The display in the large keystone case was made by the Lancaster Leaf Tobacco Board of Trade, and the tobacco used is known as the Pennsylvania broad leaf. An examination of this leaf by the tobacco experts revealed such a uniformity in shape of leaves, both in width and length and fineness of texture, fineness in color, yielding, and good burning qualities and elegant aroma that they unhesitatingly awarded it the Grand Prize.

This tobacco stands in the first rank of all tobaccos grown in the United States for cigar purposes. The fact is not disputed that there are tobaccos grown in the United States that are equal to it in one or other of its qualities enumerated, but for all of these essential properties, it stands without a peer. To substantiate this it is only necessary to state that the shorter lengths are conceded by experts to be the finest quality that can be used for blending with imported Havana filler, and that the eighteen to twenty-two inch lengths are used in the manufacture of some of the finest cigars made in this country. This same variety of tobacco, owing to its medium dark color, is sometimes employed by manufacturers for wrapping purposes as a substitute for imported Havana. The longest and lightest colored leaves of this variety are quite extensively used for stogie wrappers and are



PENNSYLVANIA AGRICULTURAL EXHIBIT SHOWING KEYSTONE

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considered as good as any in the market for this purpose.

The exhibit in the cases north and west of the Keystone was made of Havana seed. This tobacco is mostly used for a cheap grade of cigar wrapper; but before the introduction of Sumatra, it was extensively used for wrapper on fine cigars. It was grown from Havana seed and was looked upon at the time of its introduction into the United States as the leading wrapper tobacco. It still retains its fine smoking qualities, but owing to the greater wrapper yielding of the Sumatra, it has been forced into the ranks with the cheaper tobacco for cigars, notwithstanding the fact that the shorter sizes when sufficiently heavy bodied are much sought after for filler purposes in fine cigars. The case of tobacco in the northwest corner of the space illustrated the method of packing Pennsylvania tobacco, in connection with a new device for opening the cases, for the escape of any excess of moisture, to prevent damaging the tobacco during the process of fermentation.

In close relation with the tobacco exhibit and to complete it, was displayed a large variety of cigars, made of Pennsylvania tobacco by York and Lancaster county manufacturers. This tobacco exhibit, in addition to the Grand Prize referred to, was awarded

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one Gold Medal to the Lancaster Tobacco Growers Association, one Gold Medal to John R. Bricker, for the display of exceptionally fine Havana seed, and one Silver Medal each to George Hibshman and M. L. Greider. The installation of the tobacco exhibit was made under the immediate direction of William H. De Haven, of Lancaster, an expert in tobacco, who went to St. Louis for that purpose.

Centrally in the south half of the block was found another pagoda containing the Economic Zoological Exhibit of the State, displayed in thirty-six cases, each four feet long, three feet wide and eighteen inches deep. Each of these was covered with a plate of glass and all were arranged in the form of a hollow square, nine cases on either side, with the glass parts facing outward. This exhibit was assembled, mounted and organized by Prof. H. A. Surface, Economic Zoologist of the State, and Professor of Zoology at the Pennsylvania State College. He was ably assisted in the work by Benjamin P. Rothrock, an expert taxidermist, of Williamsport, D. K. McMillan, of Gettysburg, and William J. Durborrow, of Harrisburg. In the installation of this exhibit the thought was to show the birds and animals which are familiar upon the farm, depicting the characteristic habits and traits that mark them as the friend or foe of the

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farmer and his work, and that this purpose was most successfully accomplished was the verdict of all who had the opportunity of seeing this display.

In this exhibit natural conditions were imitated as faithfully as possible. Beginning with the loons, two males and two females were shown as typical fish-eating birds; the grebes or divers, and the merganzers fish-eating ducks,, the former feeding on vegetation, insects and fishes, and the latter fish-eating exclusively. In the next succeeding case were exhibited the gulls and shore birds, the former as scavengers and the latter as some of the choicest game birds of the State. The vanishing game ducks, such as the wood duck, were shown nesting in a hollow log provided for the bird instead of the hollow tree where it was accustomed to nest before the tree was cut away and while the species was still abundant, giving a practical idea of how this bird can be restored to the haunts in which it was once so abundant. Here also were found the mallard, the ancestor of our domesticated ducks, the green winged teal, the pintail, the American golden eye and the bufflehead, all of them valuable game birds, now fast disappearing from their native haunts in the State. The herons and bitterns and the rails and coots, typical swamp birds, were displayed in their native home, the rails and coots feeding upon insects

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which infest the swamps and lowlands. The American eagle, both the bald and the golden, specimens of each species, looked down from their aeries on sight-seers at the Exposition.

The turkey vulture and the crow were placed together because the crow can be included among the scavengers. The vulture feeds wholly on carrion, and the crow partly, thus preventing the pollution of air and water, but in addition, the crow feeds on a large number of obnoxious insects from May to December. Of the hawks, large and small, a number were mounted with the food they eat, thus showing that they are mostly beneficial birds. The marsh hawk was seen enjoying a meadow mouse, which is largely its food; the short-shinned hawk, feeding on young duck, upon which they preferably prey; the red-tailed hawks feeding on rats; the duck hawk carrying a shrew, and the sparrow hawk feeding on English sparrows and mice. Several sparrow hawks during the day and one or two screech owls will effectively check the English sparrow in a farm.

Among the most important cases on exhibition were those of the owls, both large and small, for the reason that here we have an actual demonstration of the value of these birds to the farmer. The barn owl, the short-eared owl, the screech owl, feeding on animals

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and birds, nearly all of them injurious to the farmer, and yet that same farmer will kill these owls or permit them to be killed without reserve. The quail and the buffed grouse, known by different names, were shown in characteristic attitudes, feeding upon seeds of weeds and grasses and insects and on the Colorado potato bug, which the quail and the rose-breasted groosebeck are known to have kept in check where these birds are still sufficiently plentiful.

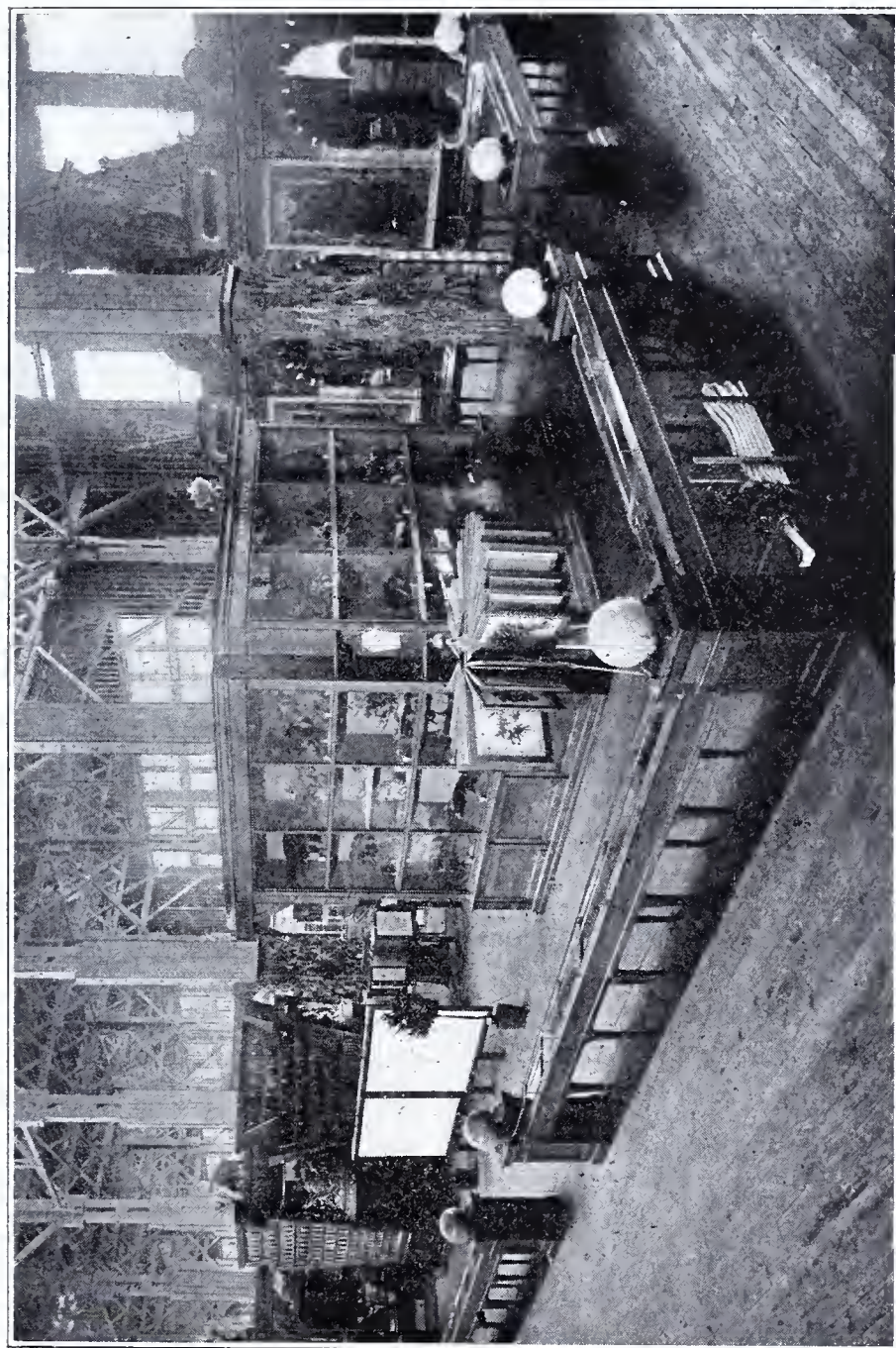
The most instructive case was that of the woodpeckers and a number of the smaller insectivorous birds. The yellow-bellied woodpecker or so-called sapsucker, with a section of an old apple tree drilled full of holes by these birds, perhaps for the purpose of obtaining the sap from the tree, as well as the larva of insects; the downy woodpecker in its orchard operations; the hairy woodpecker as a resident of the forest; the pileated or large woodpecker, sometimes erroneously called the woodcock, a shy, retiring bird, but very beneficial in the large dense forest, and the red-headed woodpecker with its female companion, were among the most valuable birds. Upon the ground in this case was the flicker or yellow hammer, which lives and feeds more on ground-inhabiting insects than any other species of the woodpecker

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family, so that this family of birds is beneficial to all departments of agriculture.

The other birds exhibited in this case were the nut-hatches clinging with head downward to the trunk of a tree, looking in cracks and crevices for insects and larva, such as the coddling moth and the pear-sylla. The titmouse and chickadee eat very small insects and especially insect eggs. The chickadee remains in the State all winter, and is the most efficient enemy of the aphids. The wren and the brown creeper are equally as effectual in destroying insects. Placed together in a case were the black-billed cuckoo, the Baltimore oriole and the king fisher. The cuckoo sat facing the nest of an American tent caterpillar, upon which it feeds and which is one of the most destructive of the hairy species, and upon which the Baltimore oriole was feeding.

In another case were exhibited a number of species of birds, among which were the night hawk and the whip-poor-will, both insectivorous birds of the twilight and night; the chimney swift, entirely insectivorous, the king bird, the cat-bird, the scarlet tanniger and its mate, the cardinal, the pine grosebeak, the brown thrasher and the humming bird with nest and eggs, some extremely and others variously beneficial to agriculture. What are described as perching birds



PENNSYLVANIA AGRICULTURAL EXHIBIT, LOOKING NORTH-EAST.

PENNSYLVANIA AT THE WORLD'S FAIR.

were displayed in another case, the mourning or turtle dove, a very desirable bird, being the only exception in this classification. The blue jay taking an egg from a robin's nest displayed its objectionable habit; the Southern shrike, pinning a June bug on a branch; and placed close to this a Northern shrike breaking away the skull of a meadow mose, were all natural. These birds live on bugs, grasshoppers, mice, English sparrows and frogs. Here were also exhibited two red-winged blackbirds which feed almost wholly on insects; on the ground was a meadow lark, which is one of the most valuable insectivorous birds in the State. Beside it were two robins, the insectivorous habits of which will justify all farmers in preserving them about the premises regardless of the fact that during the year when insects are scarce they feed upon cultivated fruits and berries.

Beginning with the mammalia were shown the young black bear feeding on berries. This animal is of little economic value to the farmer, but if sufficiently numerous would be decidedly injurious, as it feeds on live stock, fowls and native valuable birds. The red fox was shown in its dual nature, both as beneficial and obnoxious. One carrying a chicken and the other in the act of catching a field mouse peeping at it from a hole in the ground; another car-

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rying in its mouth a meadow lark, while another was seen coming down a slope with its mouth fringed with mice. The specimens of wild cat were shown remarkably well in nearly every attitude of nature, one eating a rabbit which it has just killed and another climbing a tree to capture a sleeping jay. In another case was shown the only economic value of our native species of the cat tribe in the act of killing a porcupine, that spiny enemy of the forest tree, by ripping up the central part of its body which is the only place not protected by spines.

The musk rat was shown in one of its native tussocks, which is built of rubbish and affords a dry and warm winter retreat for the musk rat family. The musk rat is injurious to farm crops, trees, underdrains, dams and dikes, often causing great damage by making holes through these or stopping drains. The woodchuck or groundhog was shown burrowing in the ground and also feeding on its customary food, the crops of the farmer, without doing anything to compensate him for its food. With but two exceptions, all the species of squirrels in Pennsylvania were shown. The chipmunk with its cheek pouches filled with acorns, showing how it carries its food and in this way proves its benefits by carrying nuts, acorns and seeds, burying them where they will sprout, thus extending the

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growth of the forest and assisting nature in her efforts to grow trees. The little red squirrel, which in all probability is the one useless and destructive member of this family, because it drives away or destroys the gray squirrel, was also there. This squirrel feeds on birds' eggs and the young of birds, and is of no value itself as food for man.

A very striking exhibition was made of rats, mice, moles, shrews and voles. Both species of rats, the old-fashioned rat and the Norway rat were seen feeding on their customary farm products, while the white-footed mouse, so common throughout the State, was displayed gnawing a little tree and the vole doing the same on a larger tree, all of them specimens from orchards destroyed by these rodents. The vole lives in permanent meadows, grass and clover fields in which it makes run-ways and destroys the grasses, by eating away crowns and tops of the roots.

The underground run-ways which are built by the mole and are seen on the surface by conspicuous ridges are inhabited by the mole, the shrew and the mouse. The mole is supposed to destroy vegetation because it loosens the ground, but instead it feeds mostly on earth worms, larva and insects inhabiting the ground. The shrew which also inhabits this burrow, and two of which were seen, one eating a bug and the other a

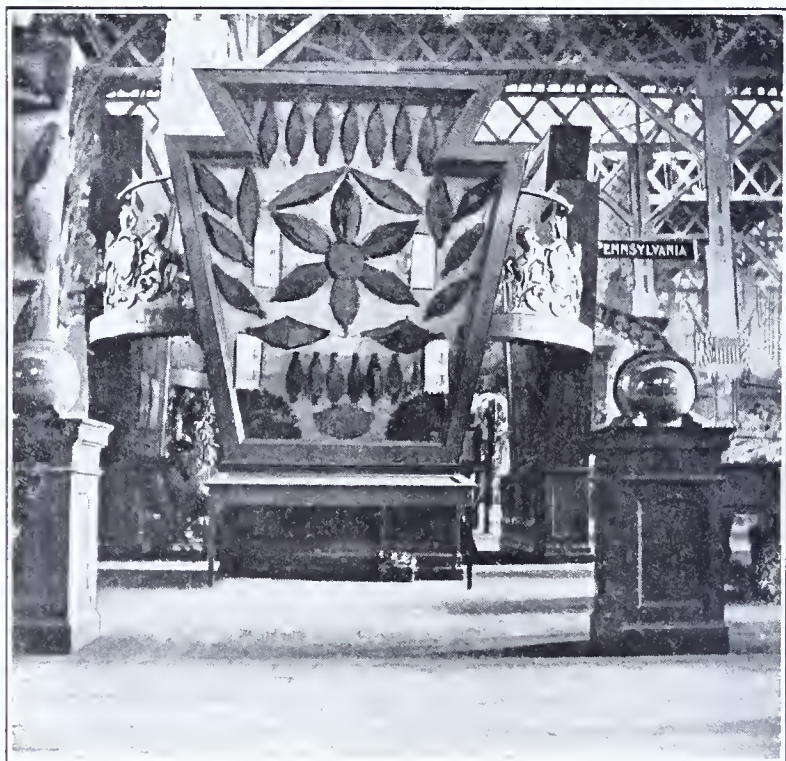
THE AGRICULTURAL DISPLAY

mouse or vole which it kills by a sudden lunge, piercing the skull of the mouse with its projecting lower teeth, do not feed on the roots of grasses and cause great damage as does the mouse. The ordinary cotton tail was shown at its usual destructive business, barking small fruit trees. The varying hare was seen in its summer garb of gray, in its autumnal dress of partial gray and white, and in its winter coat of white.

Two specimens of porcupine were mounted in their characteristic attitude, eating a young pine tree, showing the injury done by this species to our young pine forests. The skunks were exhibited, demonstrating their relations in the economy of nature, one digging in the ground for insects which constitute their food for the greater part of the year, while the other was in the act of eating eggs from the nest of a quail. The minks were exhibited showing the varieties of food on which they live, one coming out of the water carrying a fish, another eating a young duck, and still another a mouse. They are of no real value to the farmer, except for their fur. The weasel was shown in its summer and winter pelage of brown and white, and also as consuming the usual food, a young duck and mouse. If these animals could be taught to abstain from eating poultry, they would be of great

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value to the farmer for destroying rats and mice. This exhibit was awarded a Gold Medal.



THE TOBACCO KEYSTONE, PENNSYLVANIA EXHIBIT.

Incidental to this exhibit could be seen in the show cases just south of and adjoining it a very large and interesting collection of birds' nests and eggs, ranging from the tiny drop of the humming bird to the immense egg of the eagle. This collection of the eggs of birds indigenous to Pennsylvania was courteously

THE AGRICULTURAL DISPLAY.

loaned to the State by J. Warren Jacobs, an enthusiastic young naturalist and zoologist of Greene County. It comprised sets of eggs of all the common summer birds and nearly all the rarer species found within the Commonwealth during the breeding season. A few species were also represented in the collection, whose occurrence as breeding birds is somewhat doubtful although specimens of the birds were observed during the summer months. Nearly all birds are beneficial to agricultural industry, and are therefore of great value; especially is this true of birds found with us during the summer months.

The nesting period of Pennsylvania birds begins during the month of February. The great horned owl is the only species to nest so early. Late in March and early in April the smaller owls, the hawks, horned larks, woodcock, killdeer and others hatch out their young. May and June, however, is the nesting period for most species, when injurious insect life is most abundant. The birds which nest at this season of the year are the farmers' best friends, and should be protected by everybody and encouraged to nest about the gardens and over the farm generally.

The species which feed exclusively on insects are the cuckoos or rain hawks, the swallows, the whippoorwills, night hawks and warblers. The first of these—the two

PENNSYLVANIA AT THE WORLD'S FAIR .

species of cuckoo—are found commonly nesting in orchards, building a nest similar to that of the turtle dove, and laying from two to five yellowish-green eggs. The swallows vary greatly in their nest location. The chief species and common barn variety build their mud nests in and near barns and other farm buildings. One species nests in cavities in trees in marshy lands, and two species build their summer home in the side of a bank or in crevices of rocks. The whippoorwill and night-hawk, as is well known, build no nests but lay their eggs on a leaf or on the bare ground. The house martin is a member of the swallow family and should be encouraged by the erection of bird-boxes in which to nest.

The vireos are mostly woodland nesting birds, building a small basket-shaped nest, suspended from a forked twig. The warblers which are great insect-eating birds, are represented in our State by about two dozen species, most of which were found in this collection. About one-half of this group build their nests in the woods, some choosing a location up among the branches of the trees, while others nest on or near the ground. Another group, almost as valuable for their destruction of injurious insects, is the fly-catcher family. Their nests are to be found in the orchard, garden, and woodland and in such places where they capture the insects, which

THE AGRICULTURAL DISPLAY.

they feed to their nestlings. This exhibit was awarded a Gold Medal.

Beginning at the point where the exhibit of birds' eggs terminated and extending through the show cases to and entirely across the south end of the block and extending down the west side of the first entrance was displayed a unique and most interesting variety of fine wools, for which Pennsylvania is famous. The wool was shown in the grease or unwashed state, and instead of whole pieces consist of small samples taken directly from the sheep for this purpose. Upon the black velvet which lined the bottom of the cases these samples were arranged in a large variety of beautiful forms and constituted one of the most attractive and effective features of the exhibit. Four varieties of wool were displayed: the Delaine, Merino, Cotswold and Shropshire. The samples of Delaine were wonderful for length and equally so for fineness and perfection of crimp, being twelve inches long, perfect in fibre from base to tip, and soft and fine as silk. These won the Grand Prize in competition with exhibits of similar character from all over the world. The Merino wools displayed were of the shorter varieties and were undulating and curled. There were a great number of samples of these particular wools of a character which commands the highest regard in the markets. The exhibi-

PENNSYLVANIA AT THE WORLD'S FAIR.

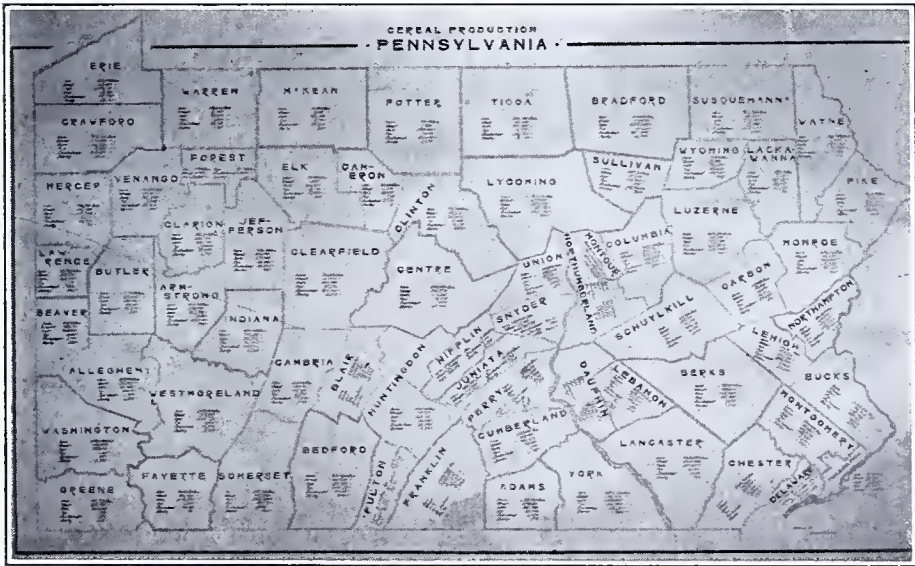
tors were awarded eighteen Gold Medals for this exhibit. Cotswold displayed was specially noted for strength and length and fineness of fiber and therefore valuable for weaving heavy, strong and at the same time fine material, it being in great demand for heavy hosiery. The exhibit was awarded seven Silver Medals. The Shropshire wools were the only varieties which did not come up to the high standard of perfection of those described, and were awarded two Bronze Medals.

Those who contributed to the admirable collection of wools were: F. W. Allison, Mercer; A. A. Anderson, West Middlesex; J. M. Berry, Wylandsville; S. W. Berry, Cannonsburg; William Berry and Sons, Washington; Joseph Borrow, Slippery Rock; J. P. Chambers and Son, Wylandsville; S. M. Cleaves, Burgettstown; A. S. Eggleston, Jackson Center; Finley Brothers, Claysville; J. B. Handerson, Burgettstown; John W. Kerr, Stoneboro; W. C. Leonard, Crothers; W. C. McCoy and Sons, Mercer; W. C. McDonnell, Florence; S. V. McDowell, and Sons, Fredonia; McWreath Brothers, West Alexander; Lee R. Scott, Burgettstown; J. R. Shoof, Smithfield; U. S. Sterret, Jackson Center; J. R. Stewart, Hookstown; J. B. Tait, Mercer; F. S. Tait, and Son, Mercer; J. W. Van Kirk, Crothers.

In the remaining six cases on the west side of the enclosure was a display of Paragon [chestnuts, an

THE AGRICULTURAL DISPLAY.

exclusive Pennsylvania product. The contributions to this collection were made by Eli G. Reist, Mt. Joy; C. Sober, Lewisburg; Wilmer Atkinson, Philadelphia; Henry Lehman, Wrightsville; and C. E. Ehrhart, Chambersburg. The Paragon chestnut was developed by Henry M. Engle, Marietta, and it was proven so prolific and so well adapted to our climatic conditions, and thrives so well when grafted on the wild stock that it has become an industry of significant propor-



ONE OF THE AGRICULTURAL CHARTS.

tions in the State. The endeavor is to have the land originally covered with native chestnut timber, and which is of no value for other farm products, con-

PENNSYLVANIA AT THE WORLD'S FAIR.

verted into Paragon chestnut groves. This Exhibit was awarded five Silver Medals.

In the six cases on the east side were exhibited many samples of high grade cereal products all manufactured within the State, mostly contributed by the Miner-Hilliard Milling Company, including Colonial maize flakes pearl hominy, granulated hominy, brewers' grits, brewers' meal, white corn flour, bakers' cones, steam-cooked hominy, feed, gold dust meal, yellow table meal. These articles showed the great advance in the manufacture of corn products in recent years, and the great variety of uses to which a single cereal can be put. This exhibit was awarded a Gold Medal.

Sugars made of the juice of the cornstalk and treated by a special process devised by F. L. Stewart, of Westmoreland County, together with the by-products—pulp, cellulose, paper pulp and paper—were displayed in a case on the east side, and in the adjoining case an exhibit of honey and honey in the comb was made by E. A. Dempwolf, of York; F. J. Strittmatter, of Cambria County; and also of maple sugar and syrup, contributed by P. K. Moore, of Somerset County, William Penrod of Somerset County, and F. W. Krumennacher of Cambria County.

A portion of the space between the two pagodas was occupied by heavy rails upon either side of which were

THE AGRICULTURAL DISPLAY.

arranged maps and charts showing the statistics of the State's agriculture in an illuminating and impressive way. The maps showed county by county the crop and stock production for the year 1900, which were the figures from the official census. Lancaster County stands first in corn, with 4,523,500 bushels, and also in wheat, with 1,906,440 bushels; Berks County is first in the quantity of rye, with 445,840 bushels; also in oats, with 1,613,900 bushels; while Bradford County is first in buckwheat, with 667,360 bushels, and Centre County first in barley, with 47,340 bushels.

The maps also showed the comparisons of the valuation of domestic animals and their products, a few of which are the following: Lancaster County has a valuation of domestic animals amounting to \$4,817,790, with a product valuation of \$1,731,897; while Chester County with a domestic animal valuation of only \$3,759,869 shows a valuation of animal products of \$2,287,236, and York County, with a domestic animal valuation nearly as large as Chester County, actually \$3,378,952, has not half the value of the products, being only \$974,417; this showed clearly that the proximity of a large city more than doubles the market value of animal products, and requires of the farmer a greater variety and higher class of products at all seasons of the year.

The charts also gave the total value of the leading

PENNSYLVANIA AT THE WORLD'S FAIR.

crops of Pennsylvania in 1900, the figures being as follows: hay,—\$37,514,779; corn—\$21,896,795; wheat—\$13,712,976; oats—\$11,093,893; potatoes—\$9,397,054; tobacco— \$2,959,304; rye—\$2,070,847; buckwheat—\$1,945,860; barley—\$88,163. The total value of live stock in 1900 was: horses and mules \$43,856,517; milch cows \$29,141,561; oxen and other cattle \$13,921,630; swine \$5,830,000; sheep \$4,642,606. The average value of different classes of live stock in Pennsylvania compared with the United States was as follows:

	PENNSYLVANIA.	UNITED STATES.
	PER HEAD	PER HEAD
Mules,.....	\$76.32	\$53.56
Horses,	59.37	44.61
Milch cows,.....	33.15	31.60
Other Cattle	27.34	24.97
Sheep,.....	3.60	2.93
Swine,.....	7.20	4.15

Another chart of wide interest to Pennsylvania farmers demonstrated that 72.4 per cent. of the farms of the State are cultivated by their owners; 15.4 per cent. by renters on shares; 10.6 per cent. by those paying a money rental, and only 1.6 per cent by managers. This favorable proportion of self-owned farms is characteristic of Pennsylvania and is something with which very few States are able to make any comparison. This is largely due to the fact that this State is the home of

THE AGRICULTURAL DISPLAY.

the Pennsylvania German, one of whose strong points is to stick to the ancestral homestead. He is the best farmer of the nation. He raised the grain that fed the armies of the Revolution, and helped to fight the battles. There are 28,855,050 acres of land in the State, of which less than one-third is in cultivation, and yet on these nine million acres were produced in 1900 two hundred and eight millions of dollars worth of farm products, or a little more than \$23.00 per acre. This includes the farm products depending upon the farm for subsistence, such as the dairy, all live stock and poultry. The average value of farm lands in Pennsylvania is \$54.29 per acre, and in the United States it is \$53.12 per acre.



FEATURE OF PENNSYLVANIA AGRICULTURAL
EXHIBIT.

Opposite the array of charts and displayed upon a similar rail was a complete collection of the native grass-

PENNSYLVANIA AT THE WORLD'S FAIR.

es of Pennsylvania, numbering one hundred and ninety-two samples, as beautiful as it was complete and scientifically correct. A more attractive set of pictures to the practical farmer and the student of agricultural science and the like could nowhere be found. These grasses were collected and mounted by the late Dr. Thomas C. Porter, of Lafayette College, and his successor Prof. Alvin Davison. A Grand Prize was awarded this exhibit, and it was declared by the jurors, Dr. Wittnach, of Berlin, Germany, and Prof. Waldron, of North Dakota, to be the most attractive collection in the Agricultural Building.

Two hundred and sixty photographs of representative farm homes of the State were shown in revolving octagonal frames, attached to the east side of the four large posts which presented themselves in the Block. These particularly impressed visitors from other States. Pennsylvania has the largest farm houses in the world. A Pennsylvania farmer builds his house as if he never expected to need any additions. The entire possible site is covered in the beginning; upon its front, with its rows of green shuttered windows, this home of the rural Pennsylvanian looks like what they call the hotel in most Western towns. It is meant to shelter the farmer's family, his hired hands and extra harvest help, and on Thanksgiving, Christmas and at weddings, which are

THE AGRICULTURAL DISPLAY.

numerous, to accommodate from fifty to one hundred persons. It is built for such emergencies. The whole structure expresses the Pennsylvania character, broad, liberal, seeking comfort without splurge, nothing skimped, abundance everywhere, no cramped way of living, contented and always conservative. These photographs were made especially for this exhibit by Miss Anna Belle Swayne, of Kennett Square.

A special feature of great beauty and interest located in the south-west corner of the space, consisted of a number of fine photographs of forest trees, made by former Commissioner of Forestry Rothrock, and some remarkably fine paintings of forest leaves, by Miss Grace Anna Lewis, of Delaware County, for which Miss Lewis was awarded a Gold Medal, the exhibit being declared by pomologists to be the best at the St. Louis Exposition.

In September there were placed on exhibition twenty-two varieties of the current year's crop of Pennsylvania potatoes, together with a decorative display of Soy beans, made by Eli G. Reist, of Lancaster County; alfalfa by J. H. Ledy, of Franklin County, and winter vetches, one stalk of which was over nine feet in length, sent by R. F. Swartz, of Monroe County, and which was the only vegetable of this kind in the Agricultural Building. The awards to the potato exhibit, while consist-

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ing merely of Bronze Medals, were numerous, and like those given to the display of Paragon chestnuts, were announced after the prizes allotted to other features of the Agricultural Exhibit, and not included in the original list.

The only material used in the furniture of the installation was fine quartered oak in natural finish, with the best glass. It was all constructed in a plain substantial, though massive way, and the color scheme entirely



EDWARD HAZLEHURST.

in harmony. This contributed greatly to the development of the natural colors of the exhibit, which were remarkably brought out. To this natural color was added a faint touch of a beautiful rich shade of blue, in the labels, which were attached to all the exhibits; these were all of different sizes, appropriate to the objects they identified, and were in uniform keystone shape.

The whole effect of the exhibit was that of solidity, richness and dignity, consistent with the character of the State and its people. After its installation the Exhibit was placed in charge of Franklin Menges of York, who remained to the end of the Exposition.

THE AGRICULTURAL DISPLAY.

For the exhibit in Horticulture the Commission set aside five thousand dollars. It was the desire of those on the Committee to which this branch of the work was entrusted to have a display in every way agreeable to the fruit interests of the State. Every inquiry was made for the purpose of securing a proper and experienced person to prepare and install the exhibit, and upon the highest recommendation the Committee finally selected Cyrus T. Fox, of Reading, Pomologist of the State Board of Agriculture, a position he had occupied for many years.

His work was not the success that had been hoped for. There was great difficulty in getting the fruit growers of the State to respond with sufficient generosity to the request for contributions to a display of this character to enable the installation of a complete exhibit during the first month of the Exposition. The drawbacks encountered were such as to offer no encouragement that the situation would be improved as the season advanced, and in June the Executive Officer directed that the exhibit be withdrawn, and that such features of it as were not rejected by the classification, be combined with the display in the Agricultural Building.

Mr. Fox in his report states "that after two months, when the supply of the fruit of the season of 1903 had

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been exhausted, it was then found a difficult matter to obtain berries and small fruits of 1904 from Pennsylvania in good condition. Strawberries and cherries sent during June from different sections of the State arrived in bad condition, owing to delays en route, and the difficulty in securing prompt delivery in the Horticultural Building after arrival in St. Louis; also, the express charges were high. The failure of the small fruit crop in most of the counties in Pennsylvania also prevented would be exhibitors from sending fresh contributions. It was therefore deemed advisable to discontinue the display, and certain exhibits of a permanent character were consolidated with those in the Agricultural Department. If the display could have been closed during the months of July and August and reopened on the first of September, it is believed that a very creditable exhibition of the fall and winter variety of apples and pears could have been made during the last three months.' ' The authorities of the Commission felt that this was an uncertain proposition, in view of the few responses received to requests for a continuous supply of fruit from the State to keep the exhibit properly renewed from time to time. There were many excellent exhibits from Pennsylvania in the horticultural classification, however. The terraces and grounds around both the Palace of Agriculture and the Palace

THE AGRICULTURAL DISPLAY.

of Horticulture were largely decorated by Pennsylvania growers of plants and shrubs, the displays being conspicuously beautiful, and nearly all of them recognized by the award of prizes.

The provision made for the exhibition of live stock was of the most complete character, and on a scale more lavish and extensive than has ever before been accorded this branch of industry. It was the first time in the history of world's fairs that live stock interests were recognized as a full department with an independent chief. The building scheme covered more than thirty acres and included nearly fifty structures with a great amphitheater and arena; also a sale and convention building, as well as a demonstration building, silos, feed barns and stock stables.

The classification provided for the display of horses, ponies, jacks and jennets, mules, neat cattle, sheep, swine, poultry, pigeons, pet stock dogs; in fact, all the useful recognized breeds of domestic animals and fowls varying from Clydesdales to cavies, from Galloways to game bantams. The amount of cash prizes awarded to this exhibit was over a quarter of a million dollars, more than double that of any previous exposition; the largest amount awarded heretofore was that by the Chicago World's Fair, \$132,725, in 1893. The breeds and varieties were classified in six divisions, and were

PENNSYLVANIA AT THE WORLD'S FAIR.

practically six great shows of live stock, occurring at successive intervals of two weeks each, with just enough time intervening for the removal and reception of the departing and arriving breeds.

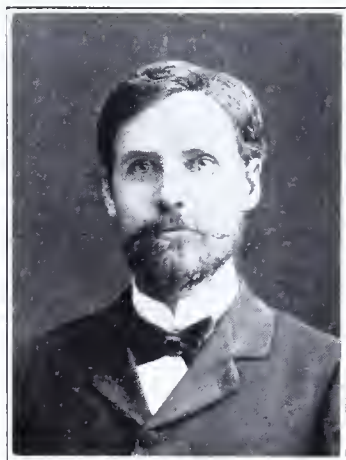
At the Exposition Pennsylvania made no State exhibit of live stock under the auspices of the Commission, though the State was generously represented in this Department through the enterprise and public spirit of a number of its citizens, who were the recipients of over two hundred cash prizes in the aggregate. The Commission's Committee having in charge the subject of a display of live stock, the members of which were: Frank B. McClain, Chairman, A. F. Cooper, and Hiram Young, considered very thoroughly the advisability of an exhibit by the State in this Department, finally determined that such action was inexpedient, particularly in view of the essentially commercial character of such a display.

Horses, asses and mules formed Division A, and the display for this Division extended two weeks, beginning with August 23 and closing September 3. Cash prizes amounting to nearly one hundred thousand dollars were arranged for twenty-four classes in Division A. There was no entry whatever from Pennsylvania in this division.

Ruminants were exhibited in Division B and Divi-

THE AGRICULTURAL DISPLAY.

sion C. Neat cattle in Division B comprised twenty-one classes, with \$64,370 in cash prizes. [The cattle display began September 12 and ended September 24. The following classes were provided: Short-Horn Hereford, Aberdeen-Angus, Galloway, Red Polled, Devon, Polled Durham, Brown Swiss, Jersey, Holstien-Friesian, Ayrshire, Guernsey, Dutch Belted, French Canadian, Norman, Simmenthal, Sussex, Highlands, Buffalo and Cattle, and oxen. [The exhibits from this State in this Division were, however, confined to the Dairy Breed of cattle,—the Jersey, T. F. Cooper, of Coopersburg, breeder, and exhibited by Thomas W. Lawson, Boston, Massachusetts, T. R. Webber and J. A. Middleton, both of Shelbyville, Kentucky, and the Biltmore Farms, Biltmore, North Carolina. The Holstien-Frienian, bred and exhibited by J. G. Paxton, Houston, Pennsylvania, W. H. Wylie, Houston, Pennsylvania exhibitor, and breeder, J. J. F. McCullough, Brilliant, Ohio; J. G. Paxton and Company, breeder and exhibitor. The Ayrshire, exhibited by George H. McFadden, Bryn Mawr, breeder and exhibitor, of domestic and imported cattle,



PROF. H. A. SURFACE.

PENNSYLVANIA AT THE WORLD'S FAIR.

of which William Winter, Drumsie, Colton, Scotland, and Thomas Scott, Netherhall, Scotland, were the breeders, of the imported stock. The Guernsey, exhibited by Edward Trotter Price, of Broad Axe, Pa., the breeders of which were Mr. Price, H. Gaudion, Guernsey, Robert Alexander, Guernsey, P. H. McCormick, Belair, Maryland, O. D. L. Robilliard, John Hamon, Guernsey, F. M. Le Pelley, F. Jehan, Guernsey, John Homon, Guernsey, Nicholas Cohn, Guernsey, J. Lawrence McCormick, Belair, Maryland and Sir H. D. Lichbone, England.

Pennsylvania in recent years has not produced beef cattle on a large scale, but twenty or thirty years ago it stood high up in the list of stall fed beef cattle. However, as a result of the growth of the larger centers of population, especially in the eastern parts of the State, cattle are kept chiefly for dairy purposes. Most of the land in the more populous parts of the State is remarkably well adapted to grass production and the growth of corn. The farms are well watered, a large number of them being supplied with cool spring water. This combination of favorable conditions early developed along dairy lines, and for more than a century Pennsylvania butter has led the market; indeed, for much of that time it was almost the sole occupant of the highest class market for this commodity. At this time the

THE AGRICULTURAL DISPLAY.

dairy interests in Pennsylvania rank second in milk production among the States of the Union. There were in the State in 1903, 1,440,625 milch cows, valued at \$32,947,472.00 and there were about a million of other cattle, valued at about fourteen million dollars, making the total value of neat cattle in the State nearly \$47,000,000.00. These great possessions in cattle give Pennsylvania a very high rank among the cattle-producing states and amply justify the great care exercised by the Commonwealth in protecting the health of members of these herds. In the parts of the State that are not favorably located for shipping milk to the cities, creameries and cheese factories are to be found, where the milk from the surrounding farms is taken and manufactured into a more condensed product, to facilitate shipment to the larger cities where it always has a ready market.

Sheep and goats were entered in Division C, and their exhibition took place from October 3 to October 15. There was allotted to this Division for cash and special prizes \$50,110, to be awarded for the following breeds: Shropshire, Cotswold, Oxford, Southdown, Hampshire, Cheviot, Liecester, Lincoln, two Merino types, Rambouillet, Dorset, Suffolk, Tunis sheep, and Angora, Cashmere and milch goats.

Sheep and wool are numbered among the staple pro-

PENNSYLVANIA AT THE WORLD'S FAIR.

ducts of this State, especially the southwestern section. Fayette County furnishes the market with the finest lamb and mutton, equal if not superior to that of the blue grass region of Kentucky. The wool products of two counties—Greene and Washington—alone in 1900 amounted to 3,008,300 pounds, valued at \$616,719.95. J. B. Henderson of Washington County was an exhibitor from Pennsylvania, of the Dorset breed and received five first prizes, four second prizes, two third prizes, four fifth prizes, making a total of \$363.00 in cash prizes.

In a State where dairying is so extensively carried on, the product of swine has for a long time been an important part of animal industry. One of the few American breeds of swine—the Chester White—was originated in Pennsylvania and has gone forth to improve the quality of swine in many distant States. There are annually in the State about a million hogs valued at about ten million dollars. Swine were exhibited in Division D, from October 3 to October 15. Eight classes were provided for with an allotment of \$30,311 in cash prizes. These eight classes represented the Poland-China, Berkshire, Duroc-Jersey, Chester-White, Essex, Cheshire, and other white breeds of record, Tamworth and large Yorkshire. J. H. Hilton of West Chester was an exhibitor and prize winner from this State for a Ches-

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ter-White boar, eighteen and under twenty-four months, of a cash prize of \$25.00.

Division E, was given to poultry, pigeons and pet stocks, which were on exhibition from October 24 to November 5. The poultry classification was divided into three groups, according to statistics on numbers and valuation. Poultry prizes made a total of \$12,411; pigeons and pet stock were allotted over four thousand dollars. The eighteen classes provided for poultry recognized 162 varieties, and eighty-one classes provided recognition for 232 varieties of pigeons. Full classifications were also provided for cats, hares and covies.

Quite a number of individual exhibitors from Pennsylvania made a display of poultry and pigeons. Pennsylvania ranks fifth among the States of the Union in poultry production, and with increased attention to breeding poultry that has developed in late years, it is, no doubt, destined to occupy a higher relative position. As it is, this State produces annually poultry and eggs valued at more than sixteen million dollars, and this from less than twelve million



FRANKLIN MENGES.

PENNSYLVANIA AT THE WORLD'S FAIR.

fowls, valued at about five million dollars, and makes the net earning of a single fowl annually over three times the fowl's market value.

Among the exhibitors from Pennsylvania who made displays of poultry and received prizes therefor were: A. J. Arnold, Dillsburg; C. E. Brey, Allentown; J. A. Clark, Pittston; W. C. Hunter, Meadville; Miss Marie Hilldorfer, Allegheny; Joseph C. Hilldorfer, Allegheny; W. H. Moore, Westtown; A. C. Freich Company, Elizabethtown; W. T. Whitman, Allentown; Dr. E. H. Witmer and Son, Neffsville; E. A. Weimer, Exmoor Farm, Lebanon County, including ducks, geese and guinea fowls. Those from Pennsylvania who received prizes for displays of pigeons were C. H. Carpenter, Manayunk, Philadelphia; A. W. Drake, Latimore; J. H. Dimeling, Pittsburg; C. K. Mervine, Philadelphia; P. A. Scheid, Lancaster; J. M. Skiles, East Pittsburg; E. C. Snider, Allentown, and W. T. Wittman, Allentown. The total number of cash prizes received by Pennsylvania exhibitors for poultry was ninety-eight, ranging from \$2.00 to \$10.00 each, and the total number for pigeons was forty-six of \$2.00 and \$3.00 each.

Pennsylvania was represented by eleven individual exhibitors of dogs, to which Division was allotted \$7,500.00. The Exposition bench show was held under Universal Exposition kennel show rules, from November

THE AGRICULTURAL DISPLAY.

8 to 11. Those of the exhibitors from Pennsylvania who received cash prizes were: E. B. Chase, Landsowne, F. H. Forwell, Lansdowne, Thomas F. Griffith, Lansdowne, Mrs. William Holliday, Philadelphia, Colonel Edward Morrell, Torresdale, B. G. Williams, Philadelphia, Joseph F. Hildorfer, Allegheny, H. B. King, Philadelphia, Miss Anna B. Lewis, B. F. Lewis, Jr., and B. F. Lewis, all of Lansdowne. The total number of cash prizes received by the above named exhibitors was nineteen and ranged from \$4.00 to \$12.00 each.



PENNSYLVANIA PUBLIC INSTITUTIONS EXHIBIT.

PUBLIC INSTITUTIONS.

EXTENT AND CHARACTER OF PENNSYLVANIA'S CHARITABLE UNDERTAKINGS—A COMPREHENSIVE AND EXHAUSTIVE EXHIBIT—MORE THAN ONE THOUSAND ILLUSTRATIONS SHOWING INSTITUTIONS AND THEIR SYSTEMS—PRACTICALLY ALL THE HOSPITALS IN THE STATE ENGAGED IN GENERAL WORK REPRESENTED—THE UNDERGROUND HOSPITALS OF THE MINING REGIONS—TREATMENT OF SPECIAL DISEASES—HOW THE INSANE ARE CARED FOR—SCHOOLS FOR DEFICIENTS, REFORMATORIES, AND PRISONS ALL A PART OF THE STATE'S UNUSUAL DISPLAY—THE COLLECTION MAINTAINED FOR PERMANENT USE.

SINCE the formation of the Union, Pennsylvania has held a foremost place amongst the States in the character and extent of its charitable institutions. A vast amount has been expended in the erection and maintenance of places of refuge and care for the sick and injured, the poor, the blind and the helpless. The Pennsylvania Hospital, with a department for the insane, and Christ Hospital, a home for indigent women, both of Philadelphia, were among the first creations of this kind in the new world, and their beneficent work has been carried on, in the one instance, the home, for one hundred and thirty-two years, and the Hospital, now one of the largest in the country, for one hundred and fifty-two years. During the past sixty years there has been a wonderful develop-

PENNSYLVANIA AT THE WORLD'S FAIR.

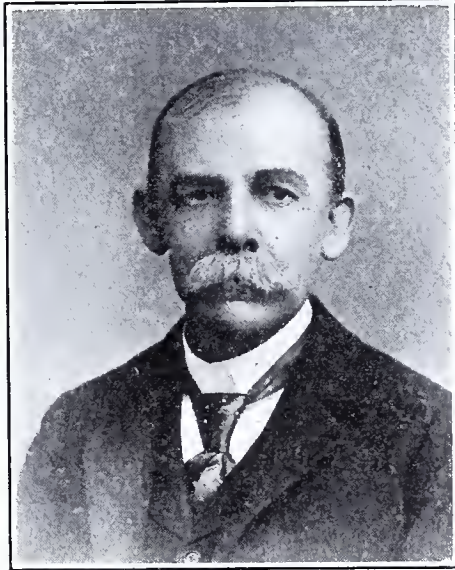
ment of this movement in behalf of suffering and needy humanity, and within two decades the increase in the number and capacity of charitable institutions has been most notable. Since the Centennial the number of hospitals has more than trebled, while the cost of their maintenance has increased four fold. There has been the same relative progress in equipment and efficiency. The record shows marvelous work along every line of scientific knowledge and acquirement. In medical and surgical treatment these great houses of mercy have been unexcelled.

It was the early intention of the Commission to bring out in the Social Economy Section of the Educational Building of the Exposition, and set aside for that purpose, a comprehensive exhibit of this excellent system organized by Pennsylvania. The plan embraced not only an exhibit of the charities and hospitals of the State, but also of the asylums for the insane, homes and schools for deficient and the reformatories and prisons. The Committee on Public Institutions, consisting of John C. Grady, Chairman; Theodore B. Stulb and Joseph M. Gazzam, had charge of this undertaking. Edwin K. Hart was elected Secretary of this Committee and to him was entrusted the duty of preparing and installing the display. He had the generous assistance of the various institutions

PUBLIC INSTITUTIONS.

throughout the State, and the exhibit, when completed, was comprehensive, detailed and exhaustive. It showed the wonderful work accomplished and what is being done from year to year. By means of over one thousand handsome illustrations, there was presented a most interesting series of views of the public institutions of the State.

This photographic panorama was so conveniently arranged that it could all be expeditiously observed. It was grouped, yet classified, and through its manifold fea-



EDWIN K. HART
In Charge of Social Economy Exhibit

tures became a revelation of the inner life of the philanthropic arena. The ordinary citizen, who has not been called upon to pass through some distressful experience, personal or family, knows practically nothing of the operations of the modern institutions for the relief and care of the sick and injured. Here he could look upon the various features of hospital life as they daily occur. His mind was broadened,

PENNSYLVANIA AT THE WORLD'S FAIR.

his heart touched, his sympathies awakened, his admiration aroused as he silently gazed upon the realistic evidences of this great work in behalf of suffering humanity. The figures before him appeared so life-like, places and scenes so vivid, pathetic and impressive, that he must needs leave with a feeling of mingled sorrow, gratitude and pride, and with a higher resolve to do his share, as opportunity may offer, in strengthening the hands and encouraging the hearts of those so self-sacrificingly engaged in serving the unfortunate and afflicted.

Over one hundred hospitals took generous part in this exhibit, located in about forty cities and towns and practically every one in the State that is now fully prepared for and engaged in general work. Exterior views showed a great number of costly and splendid buildings. Interior views presented offices, reception rooms, wards, operating rooms, operations upon patients, dispensaries, convalescent apartments and all other hospital appointments. Men famous throughout the medical and surgical world were there seen in various clinics, while everywhere appeared the calm, strong, sympathetic face of that beneficent creation of our time—the trained nurse, in simple garb, her very presence a benediction and a promise, blessing the patient sufferer, filling him with new life

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and new hope. In various groups over five hundred nurses were seen, besides the uncounted number appearing in the line of duty. Such a beautiful display of what a great American jurist aptly and justly termed "the blessed sisterhood of bedside saints," was never before given. At the World's Fair of 1893 the trained nurse was hardly in evidence; here she was the reigning queen of the hospital world. The different groups represented about a score and a half of hospitals, located in different cities, including the leading asylums for the insane.

In Pennsylvania there are distinct lines of hospital work, and all were here shown, which are peculiar. The State has provided seven splendidly equipped places of refuge for the special treatment of injured miners. In addition, under a recently enacted law, there have been erected throughout the entire anthracite mining region underground hospitals, located at the foot of each principal shaft, where first aid to the injured is immediately given, while the district surgeon is being summoned. One of these interesting places, with its equipment for every emergency, was shown. There were also representations of two industrial hospitals, the wise provision of large-hearted and generous-minded employers, for the free treatment of injured employees. One of these, located at Scrant-

PENNSYLVANIA AT THE WORLD'S FAIR.

ton, is luxuriantly equipped and the families of employees are included in the beneficence of its founder, the late Moses Taylor. The other is at Johnstown, founded and conducted by the great Cambria Steel Company, and within which over thirty thousand wounds have been dressed without charge since its establishment seventeen years ago.

Pennsylvania is also in one other important respect leading in care for the injured. Its hospital exhibit at St. Louis showed the railway hospital service instituted by its great corporation, whose employees are now trained for emergencies, being carefully instructed in first aid to the injured. A combined stretcher and cot has been adopted for use in case of accident, one of these being carried on every Pennsylvania passenger train, with needful appliances for immediate use, pending the arrival of physicians and surgeons. Over five thousand of these stretcher-cots have been placed in service.

Pennsylvania is in the van with regard to the new treatment for consumption—an abundance of fresh pure air, rest and healthful food. Seven places have been provided, three in the mountains and four in Philadelphia, with others projected. The series of views given in this connection was novel and inspiring. Patients were shown living in the open air, in zero

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weather, sleeping upon porches and in tents, taking the marvelous cure amid snowbanks and in open pavilions with a temperature which in former times was supposed to be quick destruction to weak lunged persons. Enlightening literature upon this all-important subject was also provided for free distribution. No work in modern times is more worthy of popular attention or greater support than this grand crusade against the devastation wrought by the greatest plague the world has ever known.

Pictures told all this thrilling story of hospital work at a glance. Then the inexorable logic of facts and figures supplemented this remarkable exhibit. Here was found the official record of cases treated, with results, in concise form, by means of charts, accompanying each individual exhibit. This condensation of the last, and in some cases, of many years, report, told its own story in a few words. In addition, were carefully prepared special papers and charts of surpassing interest to every student of medicine and surgery and of social science, and every intelligent layman as well. Here were found complete statistics of the most mysterious malady of our time—appendicitis—showing the number of cases operated upon, about twenty-five hundred in all within one year in Pennsylvania hospitals, and the results, over ninety

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per cent. cured. Also, a clear headed article, within popular comprehension, upon the cause, prevention and cure of this disease, by an eminent Philadelphia surgeon N. R. Ingraham, the views of other eminent surgeons and the story of the first operation for appendicitis, by the late Thomas G. Morton, of Philadelphia. A series of eighteen views of operative surgery for appendicitis completed this extraordinary exhibit—one which attracted universal attention and wondering comment.

A table of typhoid fever cases in Pennsylvania hospitals was given, with textual matter presenting plain truths concerning this widespread and destructive, yet preventable disease. Finally, there was a summary of the accident cases of Pennsylvania hospitals, for one year, showing one hundred and ten thousand victims treated in these institutions, with a suggestive review of the tendency and results of modern industrial and social methods.

The modern treatment of the insane was impressively illustrated by the Pennsylvania institutions provided for their care, both state and local. In this great Commonwealth the old-style "Mad House" has gone forever. Instead, in the most comfortable homes imaginable, those living in the shadow of a darkened mind are tenderly cared for, like the little

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children that they are, mentally. Their lives are brightened every day. Their watchful care-takers, ever sympathetic, ever self-sacrificing, lead them by the hand, as it were, by still waters, amid green fields, study their ways, please them, protect them from harm by the gentlest methods and guard them ceaselessly. The visitor to one of these great houses of mercy is amazed at what he sees; the wonderful quiet, the prevailing order at all times, seemingly without effort; the freedom, the cheerfulness, the happy daily toil, indoors and out, is all something undreamed of. Pennsylvania may well point with lasting pride to her refuges for the insane. In appointment, equipment, method and in every detail of management they challenge comparison with the best of their class, in the Old World and the New.

The more than one hundred illustrations shown presented every feature of the daily life of over twelve thousand dependents. It is seen that the magnificent buildings lack nothing to render them attractive and complete. The extensive grounds, kept in order by the grateful inmates, present a panorama of beauty. Every known improvement, within and without, has been utilized. Patients, quiet, contented, giving every evidence of skillful care, were seen at their daily tasks. Their working, sleeping, and living apartments

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appeared before the spectator, who can scarcely realize that such places are the homes of a class of unfortunates. The textual matter submitted gave a graphic account of the new method of treatment of the insane, with a special article of great interest by the accomplished secretary of the Lunacy Committee of the State Board of Charities, George I. McLeod.

Places of refuge for two other classes of deficient were illustrated. The two great institutions for feeble minded, Media, one of the oldest in the country, and the one at Polk, where every new idea has been implanted, under the most favorable conditions, presented an exhibit touching in character. The fifteen hundred boys and girls and adults here provided for receive scientific care and their indoor and outdoor life was interestingly shown.

Two hospitals for epileptics, a class whose misfortune must always awaken the tenderest sympathy of the humane, were shown: The Colony Farm, at Oakborne, and the Passavant Homes, at Rochester. Pennsylvania is also about to provide a larger State institution for these victims of a distressing malady.

No State in the Union exceeds Pennsylvania in the number and character of the places of abode, temporary and permanent, provided for those otherwise homeless. The total investment approximates \$20,000,000.



SIDE SECTION PENNSYLVANIA PUBLIC INSTITUTIONS EXHIBIT.

PENNSYLVANIA AT THE WORLD'S FAIR.

Aside from the county poorhouses, many of which, of recent erection, are models of comfort, well arranged and skilfully managed, there are upwards of twenty-five homes eminently deserving the name. Within these places of refuge over sixteen thousand persons of both sexes and all ages are sheltered. Some of these institutions are mansion-like in their proportions and appointments, costing from twenty thousand dollars to two hundred thousand dollars. In Philadelphia are three humanitarium plants of this kind, the combined value of which exceeds one million dollars. Quite a number of homes have been in existence from twenty to fifty years. The health of the inmates is uniformly excellent, testifying to the intelligence and watchfulness of the management.

While the public treasury contributes to the support of some of these Homes, many are wholly sustained by voluntary contributions. A multitude of homeless and helpless children have been rescued and saved to careers of usefulness. The aged people thus looked after gratefully linger in most cases beyond the span of life. The noble-minded men and women devoted to this work deserve the highest honor. Many of the illustrations of this part of the Pennsylvania exhibit were extremely touching. They made a beautiful showing of the true charity that never faileth. The

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Homes were shown, within and without, the inmates, old and young, as they pass the hours, under constant care.

Four model institutions providing for the care and education of the deaf and dumb and the same number of schools and homes for the blind were illustrated. Herein pupil and worker appeared at their allotted tasks. The buildings are modern in style and appointment, commodious and healthfully located. Their operations were fully shown and described through picture and chart.

The reformation of juvenile delinquents is an end diligently sought by the humanitarianism of our time. Pennsylvania has three institutions of this kind that cannot be excelled. They are conducted upon the most advanced lines, and the illustrations which formed a part of this exhibit were a revelation to many. The State Reformatory, at Huntingdon, was shown to have a remarkable record, while the House of Refuge, at Glen Mills, and the Reform School, at Morganza, commanded the admiration of every visitor. The photographic view turned on the light vividly. The School at Glen Mills also had a separate exhibit near that of the State Commission, the most complete in the Exposition.

In prison management Pennsylvania methods are second to none in the world. The two great peniten-

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tiaries at Philadelphia and Pittsburg were shown, within and without; also, a model of the former, and several county jails, of a representative character. The facts accompanying this exhibit, taken from recent annual reports, were a matter of interest to every student of social science. Advanced ideas rule everywhere. The prisoner is treated firmly, yet humanely, and the significant statement appears that discipline is readily enforced without needful resort to stern measures. The tragic tales of former times concerning those who grind within the prison house are no longer heard. In one instance, too, it was shown that the health of the inmates is maintained at a higher standard than amongst the free population outside.

Among the special papers given was a valuable contribution by Cadwalader Biddle, Secretary, reviewing the charitable work done by the State Board and the special duties assigned this important branch of government, which have been so wisely and faithfully performed. Many facts of more than passing interest were tersely stated, the figures quoted showing the immense strides Pennsylvania has taken in the work of true charity. A single paragraph, as suggestive of the character of the whole statement, must herein suffice:

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“Not a single hospital was aided by the State in 1869 and 1870, while no less than one hundred and two received liberal appropriations for the years 1903 and 1904. In like manner, while but ten homes for the aged and for orphans received appropriations in 1869 and 1870, there were sixty-two thus aided for the years 1903 and 1904.”

A summary of the work of the charitable institutions of Pennsylvania, as herein given, presents facts and figures almost beyond belief. Within one hundred and ten hospitals, during the last year reported, the number of house patients cared for approximated eighty thousand, over twenty-five per cent. of these being treated free. Within the dispensaries four hundred and fifteen thousand persons were treated, the number of single ministrations reaching the enormous total of one million four hundred thousand. All of this great service is practically free, the volunteer offerings amounting to less than ten per cent. It required over six million dollars to maintain these hospitals. The money invested in their erection, equipment and endowment exceeds twenty-five million dollars.

There have been invested in Homes, Asylums, Hospitals, Institutions for feeble minded, deaf and dumb and blind over sixty million dollars. The an-

PENNSYLVANIA AT THE WORLD'S FAIR.

nual charity expense account of institutions is upwards of fourteen million dollars. The extent of miscellaneous charity is beyond calculation. In Philadelphia alone there are over four hundred active and efficient organizations doing wonderful work. Over two hundred institutions took part in this exhibit, and the facts presented were the condensation of over eight thousand pages of annual report. In twenty octavo volumes, handsomely bound by the well trained boys of the Lutheran Orphan's Home, Topton, and the skilled inmates of the State Hospital for the Insane, Norristown, were presented the latest accessible printed reports of one hundred and eighty institutions.

A special exhibit worthy of note was an autograph volume, prepared by the boys of the Lutheran Home at Topton, which gave a history of the Louisiana Purchase and the marvelous development throughout the political, commercial, industrial and scientific world within the century, accompanied by well executed pen and ink drawings of the leading characters in American history connected with the acquirement of the territory which has become the centre of a great Empire.

The photographs which comprised this exhibit were furnished in each case by the Institution concerned.

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Without this co-operation, which was accorded by all with a commendable public spirit, the success which the exhibit achieved would not have been possible. Throughout the Exposition the display attracted the attention of all interested in the kind of work illustrated and was carefully examined by many students of this feature of social economy. A representative of Harvard University who was personally in St. Louis nearly the whole time of the Exposition, for the purpose of gathering such material as might be available, to add to the University's Museum of subjects of this character, particularly commended it, and at his suggestion the authorities of Harvard requested that the whole collection be turned over to them for their permanent use. Of course, it was impossible to comply with this request, as it was designed that the exhibit should be permanently maintained at the Pennsylvania State Capital under the control of the State Board of Charities, for the special information of the Legislature and State officers, as well as a matter of interest and pride to the citizens of the Commonwealth.



NEW YORK STATION PENNSYLVANIA RAILROAD, SEVENTH AVENUE FRONT.

TRANSPORTATION, MACHINERY AND ELECTRICITY.

GREAT SHOWING MADE BY PENNSYLVANIA IN ALL THESE IMPORTANT DEPARTMENTS—THE LOCOMOTIVE TESTING PLANT, ITS COST AND GREAT USEFULNESS—EXTENSIVE DISPLAY MADE BY THE PENNSYLVANIA RAILROAD COMPANY WITH MODELS OF STATIONS, TUNNELS AND ELEVATED TRACKS—THE WESTINGHOUSE COMPANY'S VARIED AND COMPLETE EXHIBIT IN THREE DEPARTMENTS—PENNSYLVANIA-MADE MACHINERY KEPT THE EXPOSITION IN MOTION, FURNISHED ELECTRIC LIGHT AND PUMPED THE WATER FOR THE CASCADES—THE BALDWIN LOCOMOTIVE EXHIBIT.

NO Department at the St. Louis Exposition demonstrated more completely than that of Transportation the progress which has been made in many lines of invention since the Columbian Exposition of 1893. The Building devoted to Transportation exhibits was one of the most extensive of all the temporary buildings on the Exposition grounds, covering nearly sixteen acres, and having nine miles of railroad tracks. The domestic exhibits were in competition with the best that could be presented by Germany, France, Great Britain, Japan and other progressive countries, but none exceeded the display made by the United States, and no State was as prominent in the importance of its exhibits and the general

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variety of them as Pennsylvania. Much more money was expended upon the installation of the exhibits from this State by many times than upon those of any other.

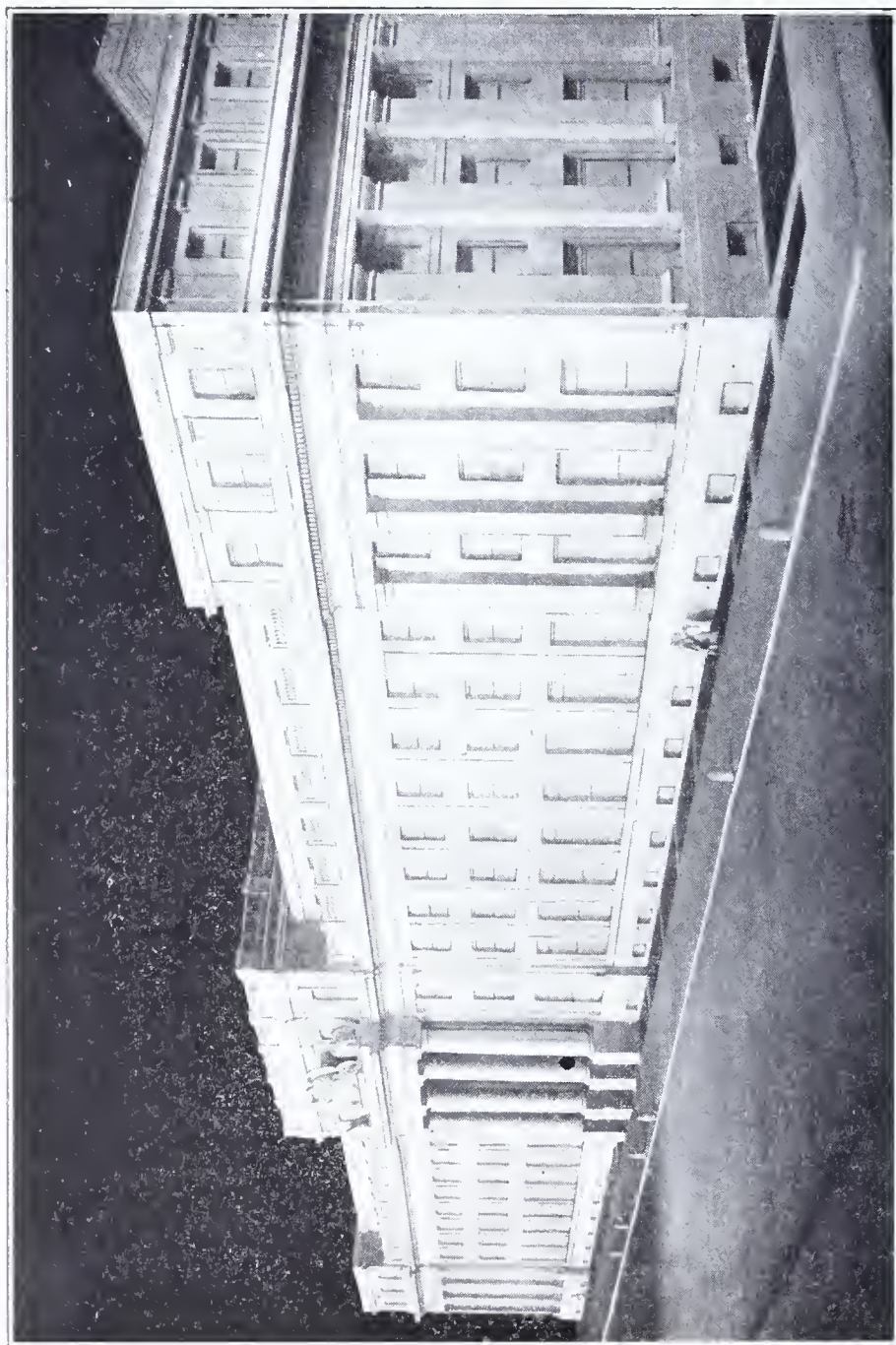
As a matter of course, the exhibit made by the Pennsylvania Railroad system led all competition. It was a wonderful exploitation of the giant organization which it represented. The marvelous progress in all of the various departments of railroading was shown in a manner to interest and instruct the average visitor, as well as enlist the careful observation and study of the most skilled experts in railroad engineering and management.

In a section of the Transportation Building covering a space of thirty-three thousand square feet there were exhibited models of the Pennsylvania Railroad's New York Terminal Station, improvements at West Philadelphia, and the Pennsylvania, New York and Long Island Railroad systems; the tunnels under the North River, East River and Manhattan Island, including a full sized section of the tunnel, showing how it will actually appear when completed. But the most magnificent achievement of all was the erection and operation throughout the whole period of the Exposition by the Pennsylvania Railroad Company of a locomotive testing plant, upon which the Company expended two

TRANSPORTATION, MACHINERY, ELECTRICITY.

hundred and twenty-five thousand dollars. It was a great experimental station where were assembled locomotives from all parts of the United States and abroad. Each day tests were made of the approved devices and the latest equipment of the Twentieth Century locomotive. Just as the expert horsemen take a horse upon the track and work him to ascertain his possibilities, did the locomotive experts take the various iron horses and work them to know what they were capable of. In conjunction with the Pennsylvania's staff of experts supervising the tests, were representatives of the American Society of Mechanical Engineers, the American Society of Master Mechanics and experts from Europe. With this array of mechanical genius, each locomotive submitted by its builders for the test was assured of a square deal. There was also the requirement that it must be a most capable locomotive if it wished to bring honor to its owners, for the men in the judge's stand represented the entire railroad world, and the result of the intricate tests meant simply a survival of the fittest.

The wonderful apparatus upon which the locomotives were placed for the test were composed of a set of supporting axles in number equal to the driving axles of the locomotive under test. Upon each axle



NEW YORK STATION PENNSYLVANIA RAILROAD EIGHTH AVENUE.

TRANSPORTATION, MACHINERY, ELECTRICITY.

were mounted two steel-tired supporting wheels. These wheels were so placed on the axle that the distance between them corresponded to the standard gauge of track, four feet eight and a half inches. It will, therefore, be seen that these wheels took the place of the track upon which the locomotive usually runs. The supporting axles were fitted with journals outside of the supporting wheels. The journals were nine inches in diameter and twenty-four inches in length, and were carried by self-adjusting bearings held in pedestals of special design, resting upon and attached to bed plates firmly secured to a foundation of sufficient size and weight, not only to support the weight of the locomotive, but also to absorb without material vibrations the oscillations and shocks produced by the locomotives when running at high speed. The weight of the supporting axles and wheels was fifty-eight thousand four hundred and fifty pounds. The total weight of pedestals and bearings upon which rested the supporting wheels was thirty-four thousand four hundred pounds. The bed plates for the pedestals and bearings were each thirty-two feet in length and a total weight of twenty-nine thousand pounds. The foundations which carried the bed plates extended beyond the latter, where they were firmly secured to them by heavy anchor bolts. During

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test the drawbar of the locomotive was firmly attached to the drawbar of a dynamometer and was thereby held in place on the supporting wheels. The dynamometer was capable of registering a traction effort of eighty thousand pounds. This powerful and interesting machine was constructed at the works of William Sellers and Company, Incorporated, Philadelphia, who also constructed the bearings, pedestals and bed plates. The design was the work of the firm named, in consultation with the Engineers of the Pennsylvania Railroad Company. The necessary resistance to the axles and supporting wheels was provided by the use of absorption brakes, one having been attached to each end of the supporting axles. These brakes were so constructed that by admitting to them water under pressure, any desired resistance to the motion of the supporting wheels and through them to the driving wheels could be provided. One interesting feature of the brake was that the water was made to flow through it under variable pressure, not only providing the necessary resistance, but also absorbing and carrying away the heat generated by the friction between the various parts of the brake.

Realize that a locomotive of sixty thousand pounds tractive power, running at a speed of forty miles per hour, or one of twenty-five thousand pounds tractive

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power, running at a speed of eighty miles per hour, on the supporting wheels and securely fastened to the dynamometer, to which the entire pull of the locomotive is transmitted, will exert a tremendous force and cause such vibrations that to resist these the most skilfully designed and heavy foundations were provided. The width of the foundation was thirteen feet and its length sixty-two feet. Its depth at one end, where the dynamometer was secured to it, was eight feet four inches. Immediately in front of the dynamometer it was five feet, and from that point to the extreme opposite end its depth gradually diminished from the latter figure to three feet. To increase the rigidity and strength there was imbedded in the concrete in the bottom and top, a series of steel rods. The weight of the foundation complete was five hundred thousand pounds.

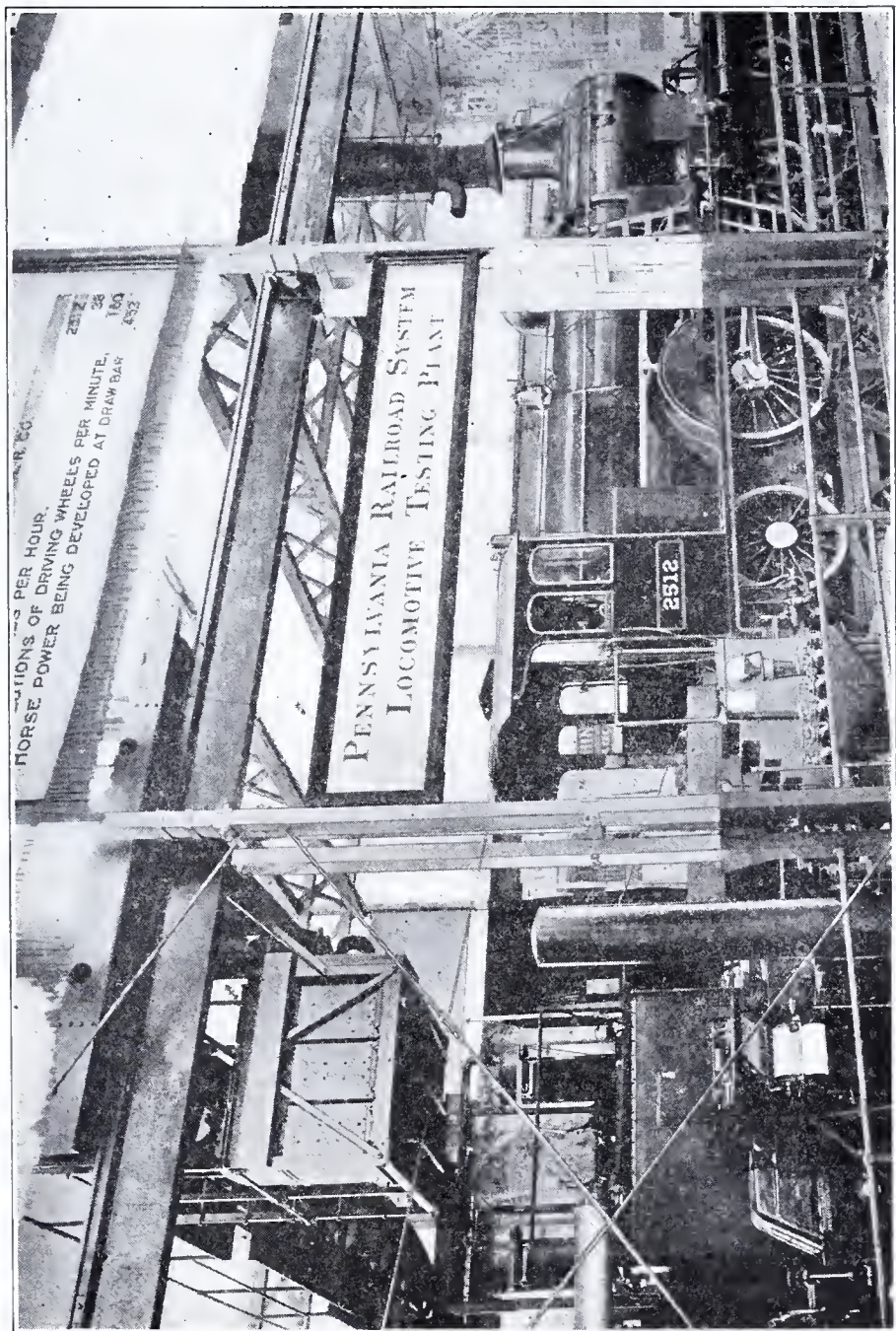
The number of locomotives tested during the entire period of the Fair was twelve, some of which were of foreign design. Each locomotive tested was under experiment and observation for an average period of from fourteen to twenty days, each day constituting a separate test, equivalent to a run of one hundred miles. The actual observed general results of these tests revealed facts concerning, first: the performance of the locomotive as a whole, under which relation

PENNSYLVANIA AT THE WORLD'S FAIR.

general comparisons were based on work developed at the drawbar. Second, the performance of the boiler and third, the performance of the engines.

The wonderful engineering feats that will, when completed, show the marvelous work of mankind in tunnelling under the water ways adjacent to New York city in order to facilitate the railroad traffic in the Metropolis of the United States, were clearly illustrated in the Pennsylvania System's model exhibited at St. Louis, showing in miniature the six odd miles of tunnel systems which pass through Bergen Hill and then under the North River, Manhattan Island and the East River, continuing underground until they rise to the surface, at a distance on Long Island. This model showed the portals at both ends of the tunnel and sufficient area beyond to indicate the terminal features. The interior and exterior of the magnificent Manhattan Island Station, together with the track system underground, gave a most realistic conception of what the great terminal station and the trackways running into it will look like when finally completed.

A full sized section of the tunnel, twenty feet long, was exhibited separately to accurately show the construction and the method to be used in supporting it upon its foundations. This section was accessible



LOCOMOTIVE TESTING PLANT PENNSYLVANIA RAILROAD EXHIBIT.

PENNSYLVANIA AT THE WORLD'S FAIR.

by stairways at either end, thus giving all persons the opportunity of closely inspecting the details of the work as it will actually be executed. The model of the New York Terminal Station illustrated exactly how the structure would appear, occupying two blocks bounded by Seventh and Eighth Avenues and Thirty-first and Thirty-second Streets. The model was left open, thus showing the interior sections to the track level through the great train shed. The well equipped restaurant, the handsome waiting room and concourse and the spacious carriage court, together with the imposing entrances and convenient offices were all shown on the model. In addition, three tiny trains rested on the trackways, which added a realistic touch to the whole miniature display.

Of particular interest to Philadelphians was the model showing the terminal tracks and yard improvements made at West Philadelphia. This model covered the ground from Walnut Street and the Schuylkill River, showing the improvements at Thirty-second Street Station; the Main Line to Fifty-second Street and the junction with the Schuylkill Division, the New York Division and the entire complete maze of trackways forming the busy lines leading into the City of Philadelphia at Broad Street Station. This model was a most interesting one, as it included seventy-five

TRANSPORTATION, MACHINERY, ELECTRICITY.

miniature cars—passenger and freight—and fifteen engines, so distributed as to emphasize the entrances to and the exits from the tunnels, as well as the grade crossings and the various levels.

In a separate room especially provided for the purpose, affording every facility for close examination, were exhibited complete maps and beautiful photographic views of the various lines of the Pennsylvania System, together with additional photographic views of the standard equipment of the Company.

In the Postoffice Department, located in the United States Government Building, there was on exhibition as a part of the actual World's Fair Postoffice, a standard postal car loaned by the Pennsylvania Railroad to the Government. This car was used at the Fair as a part of the Postoffice. The work of handling mail on a railway mail coach was clearly and aptly shown to the public in this car, as it was used during the entire Exposition period for the handling of the mails arriving at the Exposition grounds. This car was of the standard pattern and had a mail carrying capacity of thirty-five thousand pounds. In order that persons who visited the Government Building might see the Government mail clerks at work handling each day's mail, the siding and lining were not covered by mail, and letter boxes were removed and wire

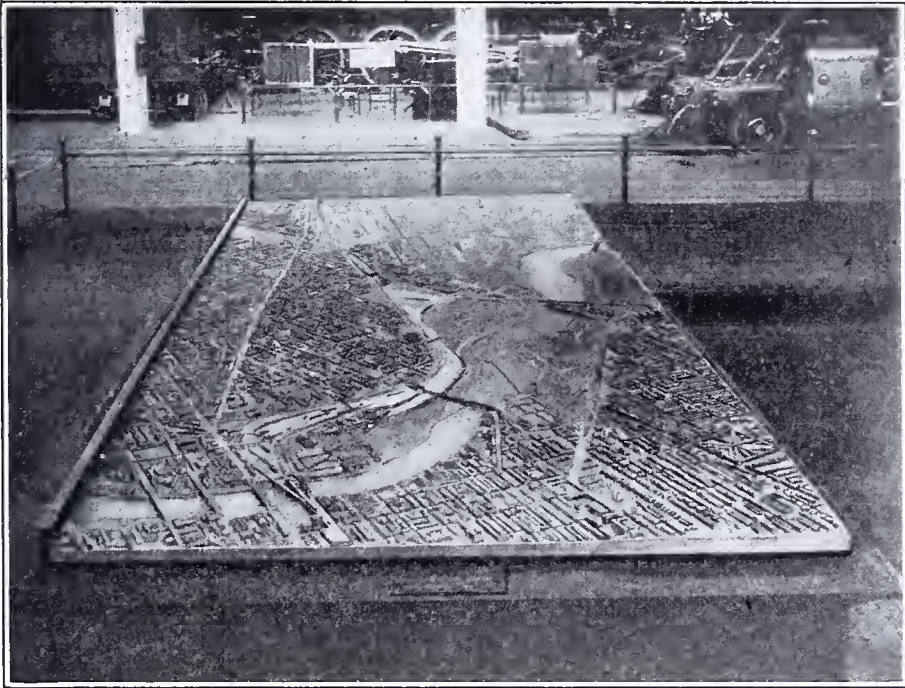
PENNSYLVANIA AT THE WORLD'S FAIR.

screens substituted. In this manner it was possible to observe just how Uncle Sam expedites the carrying and sorting of mail on the fast mail trains throughout the entire country.

As the Pension Department of the Government has grown and become one of the most important and well known institutions of the United States, in like manner has the Relief, Saving Fund and Pension Departments of the Pennsylvania Railroad Systems made progress and advancement until it is to-day one of the most interesting and important features of the service. In order that the general public might become familiar with this great economic work, there were displayed in the Department of Social Economy in the Government Building, charts and printed matter exploiting what has been done through the maintenance of these Departments for the betterment of the employees. Charts showing the change in membership, amounts of contributions and benefits paid by the Relief Department during its eighteen years of existence, and detailed statements showing benefits paid through the Department were exhibited. Another chart on exhibition showed graphically the operations of the Savings Fund for the sixteen years of its existence. This chart was a most complete affair and from it could be ascertained the number of depositors,

TRANSPORTATION, MACHINERY, ELECTRICITY.

the total deposits, the interest accruing and the withdrawals each year. Other charts exhibited gave the the total payrolls, appropriations by the Railroad Company for pensions and the amount paid in pen-



WEST PHILADELPHIA TERMINAL MODEL.

sion allowance during each of the four years the pension system has been in effect.

The printed copies of the regulations, annual reports and other information regarding the methods so closely connect the vast army of workmen of ail

PENNSYLVANIA AT THE WORLD'S FAIR.

classes with the great railroad corporations of which they are a part was also exhibited for examination in this section of the Government Building. The wide knowledge of the actual workings of this most important railroad institution, which was made possible by the complete and concise exhibits, made it one of the most instructive of the Social Economy displays at the Exposition, and those interested in that line of work pronounced it of a very high degree of efficiency and achievement.

To sum up the exhibit of the Pennsylvania Railroad system at the Exposition as a whole, it can be truthfully said that the entire exhibit was a most remarkable one, and excelled anything of the character previously undertaken. It was educating as well as pleasing to the sightseer and the great work accomplished by the Locomotive Testing Plant made it easily the most profitable and in every way successful exhibit in the Transportation Building.

The installation and management of the Pennsylvania Railroad System Exhibit at the Exposition was under the general direction of J. J. Turner, Third Vice President of the Lines West, and Theodore N. Ely, Chief of Motive Power of the Pennsylvania Railroad System. The expert in charge of the locomotive tests on behalf of the Pennsylvania Systems were: F. D.

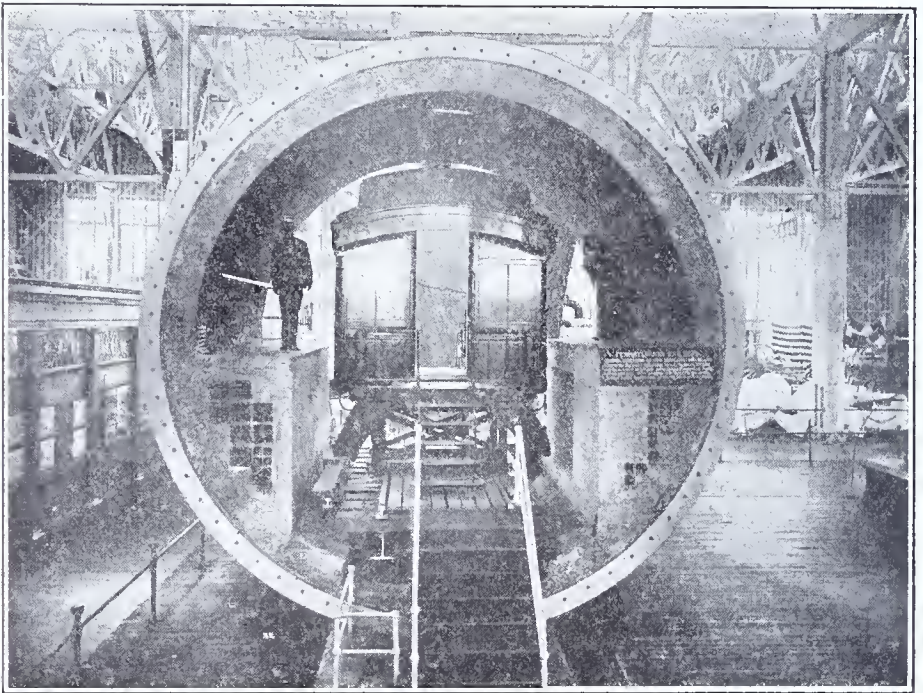
TRANSPORTATION, MACHINERY, ELECTRICITY.

Casanave, Special Agent, E. D. Nelson, Engineer of Tests, Pennsylvania Railroad; on behalf of the Louisiana Purchase Exposition, Willard A. Smith, Chief of Department of Transportation Exhibits; on behalf of the American Society of Mechanical Engineers, W. F. M. Goss, Dean of the Schools of Engineering, Purdue University, Edwin M. Herr, General Manager, Westinghouse Air Brake Company, J. E. Sague, Mechanical Engineer, American Locomotive Company; on behalf of the American Society of Master Mechanics, F. H. Clark, Superintendent of Motive Power, Chicago, Burlington and Quincy Railroad, H. H. Vaughan, Assistant Superintendent of Motive Power, Lake Shore and Michigan Southern Railway, C. H. Querau, Superintendent of Shops, New York Central and Hudson River Railroad.

Awards made to the exhibit of the Pennsylvania Railroad included a Special Commemorative Gold Medal for the original series of scientific investigations of locomotive performance conducted at the Exposition, the methods and results of which are a permanent contribution to the advancement of engineering knowledge. A Grand Prize for the model of the Terminal Station in New York City; Grand Prizes for the locomotive testing plant and laboratory, the railway postal and mail car, the

PENNSYLVANIA AT THE WORLD'S FAIR.

model of the West Philadelphia Terminal, a model of the New York and Long Island Railroad tunnels; full sized section of the tunnel under the North River; and an exhibit of methods and drawings illustrating



SECTION NEW YORK TUNNEL, PENNSYLVANIA RAILROAD.

improvements made on the Pennsylvania Railroad System. Gold Medals for the exhibit of the Pension Relief and Savings Fund Department of the Pennsylvania Railroad, and for the exhibit of the Pennsylvania Railroad Philadelphia Branch of the

TRANSPORTATION, MACHINERY, ELECTRICITY,

Young Men's Christian Association. Gold Medals were also awarded to Theodore N. Ely, Chief of Motive Power of the Pennsylvania Railroad System; To F. D. Casanave, Special Agent of the Pennsylvania Railroad; and to twenty-nine collaborators in connection with the preparation of exhibits and the testing plant.

The extensive exhibits of the various Westinghouse Companies of the United States and Europe in the Palaces of Machinery, Transportation and Electricity were in all but a small part a display of Pennsylvania products, and the much talked of Westinghouse biograph pictures shown in the Palace of Machinery were exclusively views in and about the different Westinghouse works in the Pittsburg district. The great engines, the electrical apparatus, the mechanical stokers in the Boiler House, and most of the auxiliary machinery in the equipment of the 14,000 horse power electric service plant installed for the Exposition by Westinghouse, Church, Kerr and Company came from East Pittsburg. Many of the electric marvels of the Fair—the operation of the great pumps which supplied forty-five thousand gallons of water a minute for the Cascades and fountains, the mysterious revolution of the locomotive turntable of the Big Four road in the Palace of Transportation, and the mechanical demonstrations of innumerable exhibits through-

PENNSYLVANIA AT THE WORLD'S FAIR.

out the grounds—were simple applications of motors manufactured by the Westinghouse Electric and Manufacturing Company. Apart from the Exposition service plant, which furnished electric current for general power purposes throughout the grounds and for the night illumination of all but a few of the countless buildings of the Forest City, the Westinghouse exhibits included so many novelties and were on a scale so elaborate that they constituted an important engineering feature of the Fair.

The exhibits of these companies in the Palace of Machinery were combined with unusual arrangements for the reception and entertainment of visitors; the artistic little theatre where a thousand or more persons a day attended the moving picture displays and a row of national booths furnished in styles characteristic of the countries represented. The four 3,500 horse power reciprocating cross-compound engine generating units in the Exposition service plant naturally formed an important part of the exhibit, although the engines were not, in this day of 10,000 horse power units, notable for their size, as was well shown in the entrance to the plant through a full sized plaster model of the thirty-five foot stationary armatures of the seventeen 8,000 horse power Westinghouse generators built for the Manhattan elevated

TRANSPORTATION, MACHINERY, ELECTRICITY.

and subway roads, New York City. Popular interest was centered in the little 600 horse power Westinghouse-Parsons steam turbine, which ran under load continuously from the morning of June 20 to the morning after the close of the Exposition, driving an electric generator day and night at the remarkable speed of three thousand six hundred revolutions a minute for a total of 3,982 hours—a record breaking performance which proved the state of perfection which has been attained in the rotary engine since George Westinghouse, shortly after the Chicago Fair, first undertook its manufacture in America. When this turbine was finally stopped and inspected on the morning of December 2, in the presence of several Exposition officers, it was found that there were not the slightest signs of wear, even the bearings still showing the tool marks as when it left the factory, and the perfect freedom of the working parts from dirt deposits was regarded as complimentary evidence of the scientific operation of the Exposition boiler plant.

In the same space with the steam turbine were a 225-horse power horizontal gas engine generating unit—the largest at the Fair—and a 125-horse power vertical unit, both operated at regular intervals for purposes of demonstration by city illuminating gas. This exhibit included also a special operative display

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of heavy machine tools of various makes driven by electric motors. The whole space was brilliantly lighted day and night by the new Cooper Hewitt mercury vapor lamps, a Westinghouse product, which were hung high over head, and by the lamps of the



DETAIL OF CONCOURSE, NEW YORK
STATION.

Nernst Lamp Company, of Pittsburg. Nernst lamps were also used throughout the Fine Arts Galleries, where their pure white light effectively solved the problem of artistic illumination. The mercury lamp was here seen at the World's Fair for the first time. It was used extensively also throughout the grounds for photographic work, notably by the official pass photographer, who photographed as many

as thirteen hundred persons a day with one camera by its aid. Its peculiar greenish light attracted considerable attention, especially in the Westinghouse theatre, where the new light, which has made possible

TRANSPORTATION, MACHINERY, ELECTRICITY.

the biograph views of interiors there displayed, was used, among other lights, to produce an effect that caused much merriment among those who had not before noticed the shade of complexion of persons placed under it.

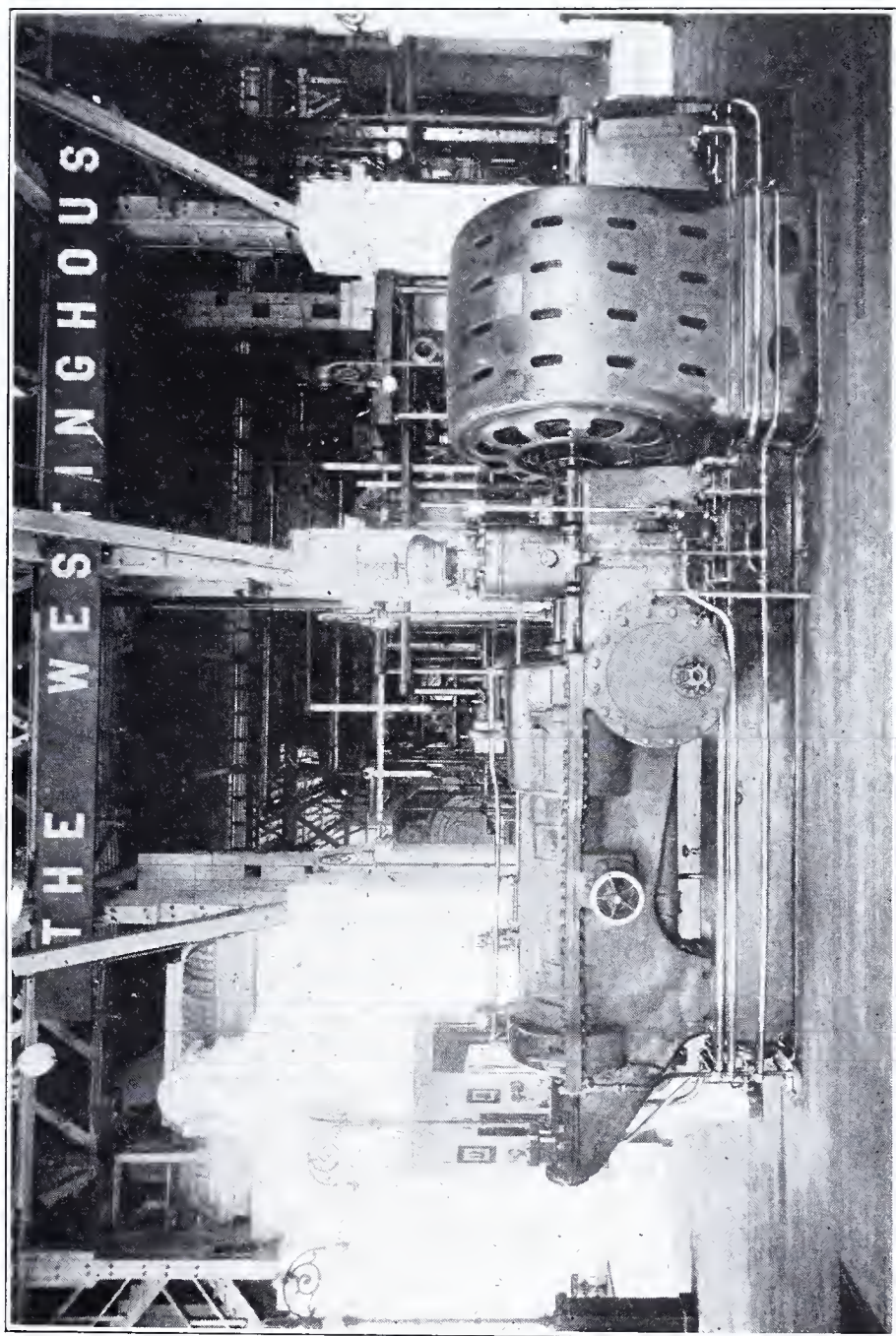
The Louisiana Purchase Exposition, to the mind of the layman, was noteworthy in engineering history primarily as the Exposition of the steam turbine, as the World's Columbian Exposition had been the Exposition of the first great reciprocating engines, which the steam turbine is to-day rapidly supplanting. The first operative display of the steam turbine, in its high mechanical efficiency, with practical elimination of friction losses, and in its remarkable economy of space, freedom from wear, and ideal simplicity, would appear to be a sufficient mechanical triumph for the average world's fair. The Louisiana Purchase Exposition, however, came at a time of revolutionary changes in the field of stationary engine construction, and to the visiting engineer at St. Louis the exhibits of Westinghouse gas engines were of even greater significance than that of the steam turbine.

The simplicity of the steam turbine, and its economy of floor space and head room, seemed peculiarly striking in the Palace of Machinery, because the boilers were some distance removed in a separate building,

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but the best type of modern gas engine, whether using natural gas, blast furnace gas, or producer gas manufactured near the engine itself, does away entirely with the boiler house and transforms over twenty-five per cent. of the heat energy of gas into useful work at the shaft, whereas, the efficiency of an ordinary high grade condensing steam engine seldom is more than twelve or fifteen per cent. As modern gas producers are so efficient that eighty or eighty-five per cent. of the original heat value of coal appears in producer gas whereas a boiler efficiency of seventy per cent. is high in steam practice, the basic superiority of the gas engine over steam engine in high fuel economy may readily be appreciated.

The gas engine is particularly interesting when considered in connection with the new "single phase" electric railway motors, which were seen in operation in the Westinghouse exhibits in the Palace of Electricity, probably the most important electric feature of the Exposition as the solution of the problems arising from the use of high tension currents in electric railway service which appears to have cleared the way for the wide substitution of electricity for steam in long distance railway service, making possible the operation of electric railways on an alternating current basis throughout, without expensive substations at



GREAT STEAM TURBINE WESTINGHOUSE EXHIBIT.

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intervals along the route for the transformation of the alternating current transmitted from the power house into direct current for the operating trolley lines. The full significance of the single phase motor exhibit was not appreciated by the casual Exposition visitor, but to the engineer the Louisiana Purchase Exposition heralded a new era, destined to see the passing of steam from many fields of service—the alternating current electric system superceding the fuel locomotive in much important railway service in thickly populated sections, and the internal combustion gas engine, with its minimum fuel and heat consumption and its elimination of boilers, steam pumps, engines, return traps, and other steam plant auxiliaries, and of the heat losses and leakage from such auxiliaries, supplanting steam in many important branches of stationary engine service.

The exhibits in the Palace of Transportation of the railway products of the Westinghouse Air Brake Company, of Wilmerding, were notable in their feature of complete operative demonstration, and attracted considerable attention. They included displays of new devices for electric and steam railway braking, the comparatively new automatic coupler for hose connections between cars in railroad service, and the friction draft gear designed to take the place of the

TRANSPORTATION, MACHINERY, ELECTRICITY.

ordinary coil spring in the absorption of pulling and buffing impacts in heavy train service. Demonstrations of the new magnetic brake for electric traction cars were given throughout the day on a truck mounted on a fifty foot track within the exhibit space, as well as on a completely equipped car operated on tracks to the north of the building, and drew considerable attention. The magnetic brake was typical of the more important exhibits of new inventions at the Exposition in which engineering economy was prominent, its operation being wholly by current generated without cost by the momentum of the power motors after the line current had been cut off. The demonstrations of railroad air brakes showed the operation of the complete high-speed brake equipment for the locomotive, tender, and cars of a six-car train, with all important valves and accessories shown in section in duplicate, so that they might easily be understood.

An attractive feature of the complete exhibit was the characteristic Russian pavilion, shipped complete from Moscow by the Russian Westinghouse Company, the only Russian Building at the Fair. The pavilion was constructed by peasant builders in the Possade Sergiewo, near Moscow, after designs by the native architect Baranomsky, and the fantastic taste of the peasants was indicated in the curiously sawn eaves,

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gables, and cornices, which were painted in the gayest colors. In this building, as well as in the Russian booth erected by the same company at the head of the row of national booths erected by the different Westinghouse companies of Europe and America in the Palace of Machinery, Russian tea brewed in curi-



WESTINGHOUSE HEADQUARTERS, PALACE OF MACHINERY.

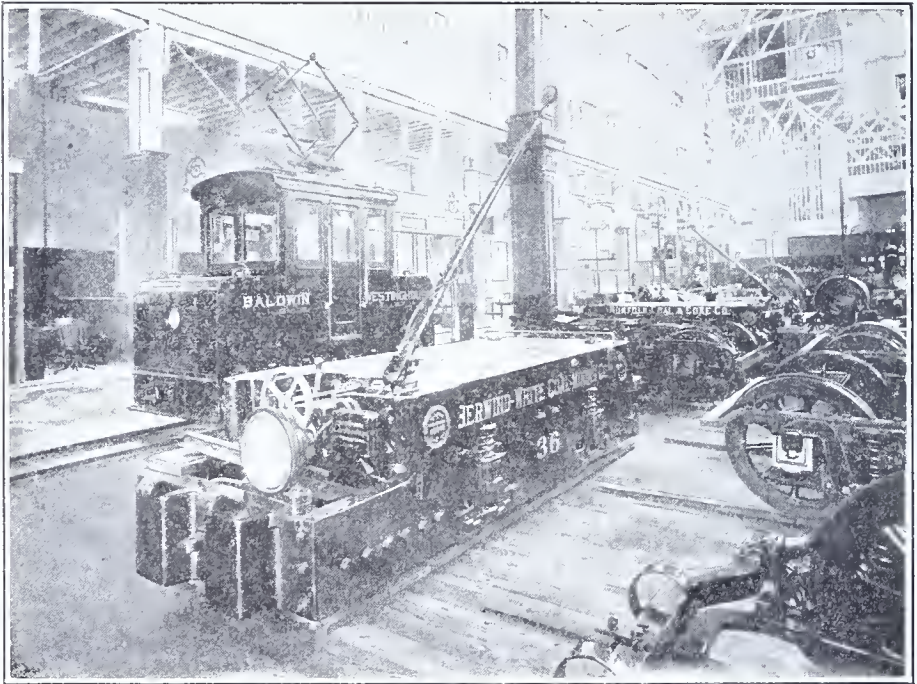
ous old samovars, and suchari, a sweet native biscuit, were served to visitors by Russian girls wearing richly embroidered boyarin costumes.

TRANSPORTATION, MACHINERY, ELECTRICITY.

The three giant induction motors—each of 2000 horse power capacity—installed under Festival Hall to operate the Cascades pumps, as a part of the Westinghouse power plant contract, were the largest ever built, and each pumping unit was capable of an output of about forty-five thousand gallons of water a minute. It was never found necessary to run more than one at a time, although a flow of ninety thousand gallons of water a minute in the Cascades basin had been originally contemplated. The supply of current to these motors was controlled from the great Exposition switchboard in the Palace of Machinery, regulated by a supplementary three-panel switchboard in the pumping station, which was equipped with circuit breakers and motor controllers so interlocked that it was impossible for an attendant there to close a main switch to start the powerful pumps unless the full resistance was in circuit to prevent any possible injury to the motors. The Exposition switchboard, installed by the Westinghouse Electric and Manufacturing Company, of East Pittsburg, was studied carefully by European engineers as an interesting example of the progress achieved in recent years in the control of high voltage current, a progress probably greater than that recorded in any other branch of central station equipment. At Chicago, in 1893, electric

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transmission from the service plant was at only 500 volts. At St. Louis transmission from the operating switch board was at 6600 volts, and each of the twenty-



BALDWIN-WESTINGHOUSE ELECTRIC LOCOMOTIVE.

nine marble panels was separately equipped for the remote control of the current delivered to various parts of the grounds.

The Westinghouse Exhibit in the Department of Machinery received a Special Award for the best, most complete and most attractive installation; in

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the several Departments of Electricity, Machinery and Transportation, it received two Grand Prizes, eight Gold Medals, four Silver Medals and one Bronze Medal.

The Baldwin Locomotive Works of Philadelphia had in the Transportation Building an exhibit which was in every way characteristic of the locomotive shop which enjoys the reputation of being the greatest in America. Locomotives, both steam and electric, were exhibited, showing the different styles required for Western mountain climbing, for heavy freight service, for record breaking passenger service and for the foreign trade. The entire installation was kept in perfect working order during the Fair period, a corps of experts being always in attendance. Relays of skilled mechanics were sent from Philadelphia each month to care for the locomotives and to keep them in perfect condition.

For the locomotive exhibit, covering steam and electric locomotives and electric trucks, Baldwin's were awarded the Grand Prize. Burnham, Williams and Company's standard Steel Works exhibit received a Gold Medal. Three individual awards were also made for special mechanical merit and achievement of locomotive specialties from the Baldwin shops. William P. Henszey received a Gold

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Medal for development and improvements in trailer trucks. S. M. Vaucrain received a Gold Medal for development and simplification of the Balanced Compound Locomotive. Cornelius Vanderbilt received a Gold Medal for development of the cylindrical tender. Almost all of the many locomotives exhibited were built for actual use and after being exhibited at the Fair were immediately delivered to the large railroads which had ordered them. In most instances these were railroads of the West and Southwest.

Pennsylvania was fully represented to every group of the Department of Transportation and by many firms of the State, exhibiting all possible appliances coming under the several classifications. The names and character of these exhibits are given in a complete catalogue in the appendix to this volume.

LIBERAL ARTS, MANUFACTURES AND VARIED INDUSTRIES.

DISPLAYS THAT WERE HIGHLY INSTRUCTIVE AND IN GREAT VARIETY
—EFFORTS OF THE COMMISSION TO HAVE PENNSYLVANIA WELL
REPRESENTED IN ALL THE DEPARTMENTS—THE COMMITTEE AP-
POINTED BY THE MAYOR OF PHILADELPHIA—REPORT OF THE CHIEF
OF THE BUREAU—SOME OF THE DIFFICULTIES ENCOUNTERED—
PHILADELPHIA COMMERCIAL MUSEUMS EXHIBIT AND THE REPORT
THEREON—THE QUAKER CITY CUT GLASS COMPANY'S BRILLIANT
DISPLAY—EXHIBITS IN ALL LINES OF MANUFACTURE,

EXTENDING from the United States Government Building at the southeast and around to the Plaza of St. Anthony on the west nearly three-quarters of a mile were the three great Palaces of Liberal Arts, Manufactures and Varied Industries. They were among the larger and more striking in architectural beauty of all the Exhibit Buildings, and located as they were formed an important part of the main picture of the Fair. The three together covered a ground space of substantially thirty-six acres.

[The Palace of Liberal Arts, which was the first of the immense structures to be completed, and the one in which the dedication ceremonies were held a year before the Exposition opened, was of particularly handsome design, with its sculpture-crowned corner

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pavilions and arched entrances rising majestically above colonnades of great doric columns, while exterior loggie extended along two sides. This Build-



CHESTER D. POTTER
Chief of Bureau of Manufactures.

ing contained the treasures of science, art and industry, grouped under the head of Liberal Arts in the Exposition classification. Within its four walls were both entertainment and instruction. The general scheme for the installation of exhibits provided for their arrangement as far as practicable under sections corresponding to

the several groups of the classification, a very convenient and easy system for the visitor.

Pennsylvania was well represented in all but three of the thirteen groups in this Department, making displays in engraving processes; coin presses; in musical instruments, photographs, book binding; in civil engineering; models and plans for public works and engraving, all of which were excellent in character and arrangement, receiving an exceptionally large

LIBERAL ARTS AND MANUFACTURES.

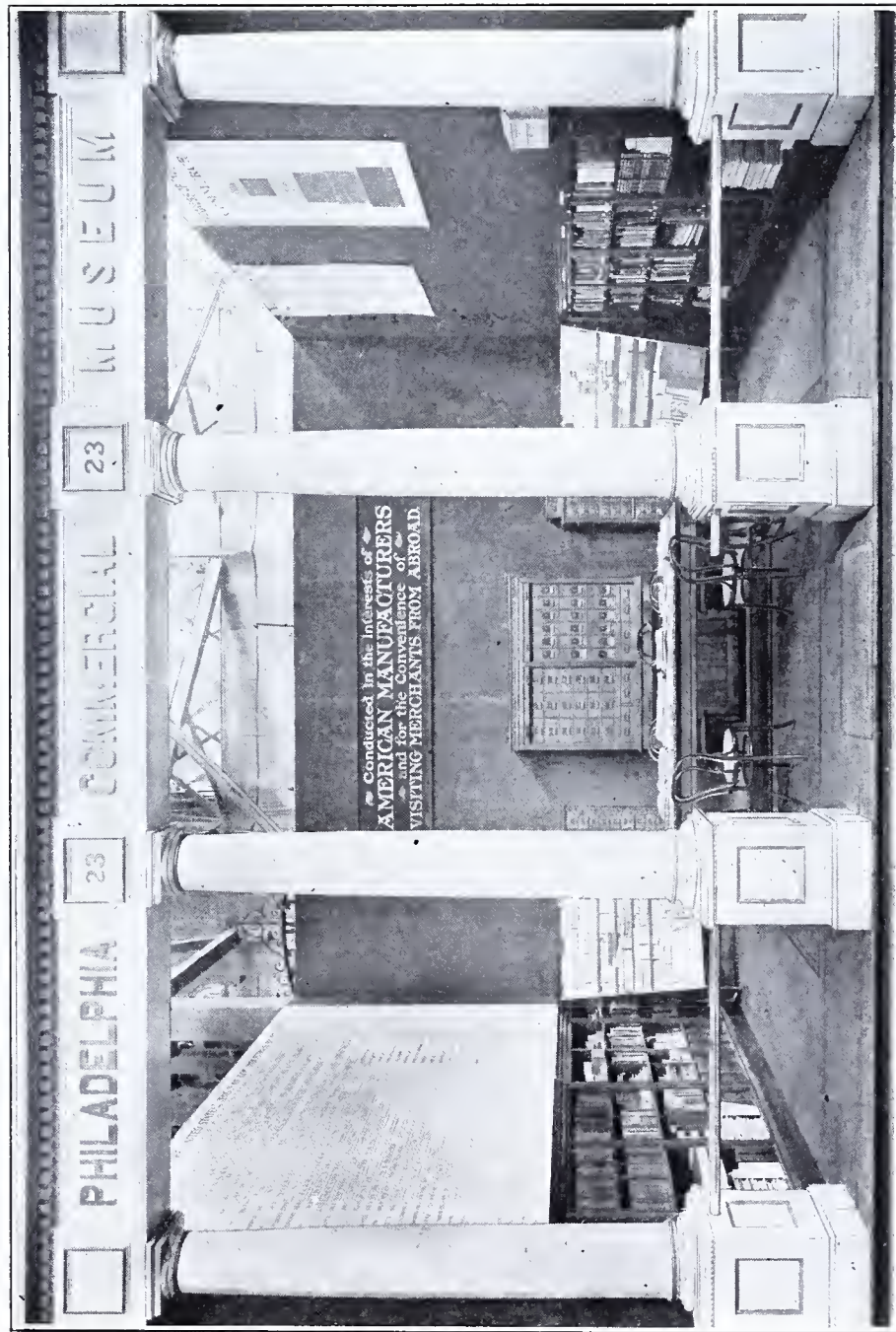
number of prizes; the total being six Grand Prizes, thirteen Gold Medals, nine Silver Medals and three Bronze Medals.

The Palaces of Manufactures and Varied Industries, both imposing structures, situated near the Plaza of St. Louis, came practically under one classification, the latter Building, in fact, having largely served to receive the overflow from the former. So far as the exigencies would permit, however, the Palace of Varied Industries was devoted to textiles and similar products, and a larger proportion of its space was given up to foreign exhibitors. Pennsylvania's representation in this classification was distinguished more by the variety than by the great number of its exhibits; for when the fifty-two thousand manufacturing establishments of the State are taken into account, the number of separate displays was not large. This was not the fault of the manufacturers, however, but was entirely due to the fact that many could not secure suitable space, and some none at all.

The Commission took up this feature of the work at a very early date. In May, shortly after the organization, a conference of representative business men and members of the Executive Committee was held in the Philadelphia headquarters, resulting in a subsequent meeting at the office of the Mayor of Philadelphia,

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and an appointment by him of a committee of business men to aid in stimulating an interest in the Exposition and securing the best possible representation of the manufacturing interests of the State. The Committee was composed as follows: Charles B. Adamson, William Ayres, Finley Acker, George F. Baer, Cyrus Borgner, Samuel Bell, John T. Bailey, E. F. Beale, Rudolph Blankenburg, John A. Brill, Daniel Baugh, Henry Burk, J. H. Bromley, C. A. Blessing, David A. Baker, A. J. Cassatt, J. G. Croxton, Charles J. Cohen, John H. Converse, Charles H. Cramp, J. Robert Caldwell, Joel Cook, Henry H. Collins, Clarkson Clothier, Theodore H. Conderman, J. Redman Coxe, James Dobson, Thomas Devlin, Robert Dornan, Joseph G. Darlington, Samuel Disston, E. Dunwoody, Thomas Dolan, James Elverson, Edward F. Fels, W. W. Foulkrod, S. B. Fleisher, Henry A. Fry, Robert H. Foerderer, T. James Fernley, Harrington Fitzgerald, Howard B. French, John Field, Rodman Griscom, Ellis Gimbel, Alfred C. Gibson, Charles J. Harrah, Edward H. Hance, Leland Harrison, Walter Horstmann, J. S. W. Holton, Henry S. Hale, J. E. Hanifen, N. B. Kelly, Mahlon N. Kline, John R. Kendrick, Arthur L. Lea, Lewis J. Levick, Frank Leake, W. H. Lucas, Henry S. More, W. L. McLean, David Nimlet, G. W. Ochs, William Potter, James Pollock, Fayette R.



PHILADELPHIA COMMERCIAL MUSEUMS IN MANUFACTURES.

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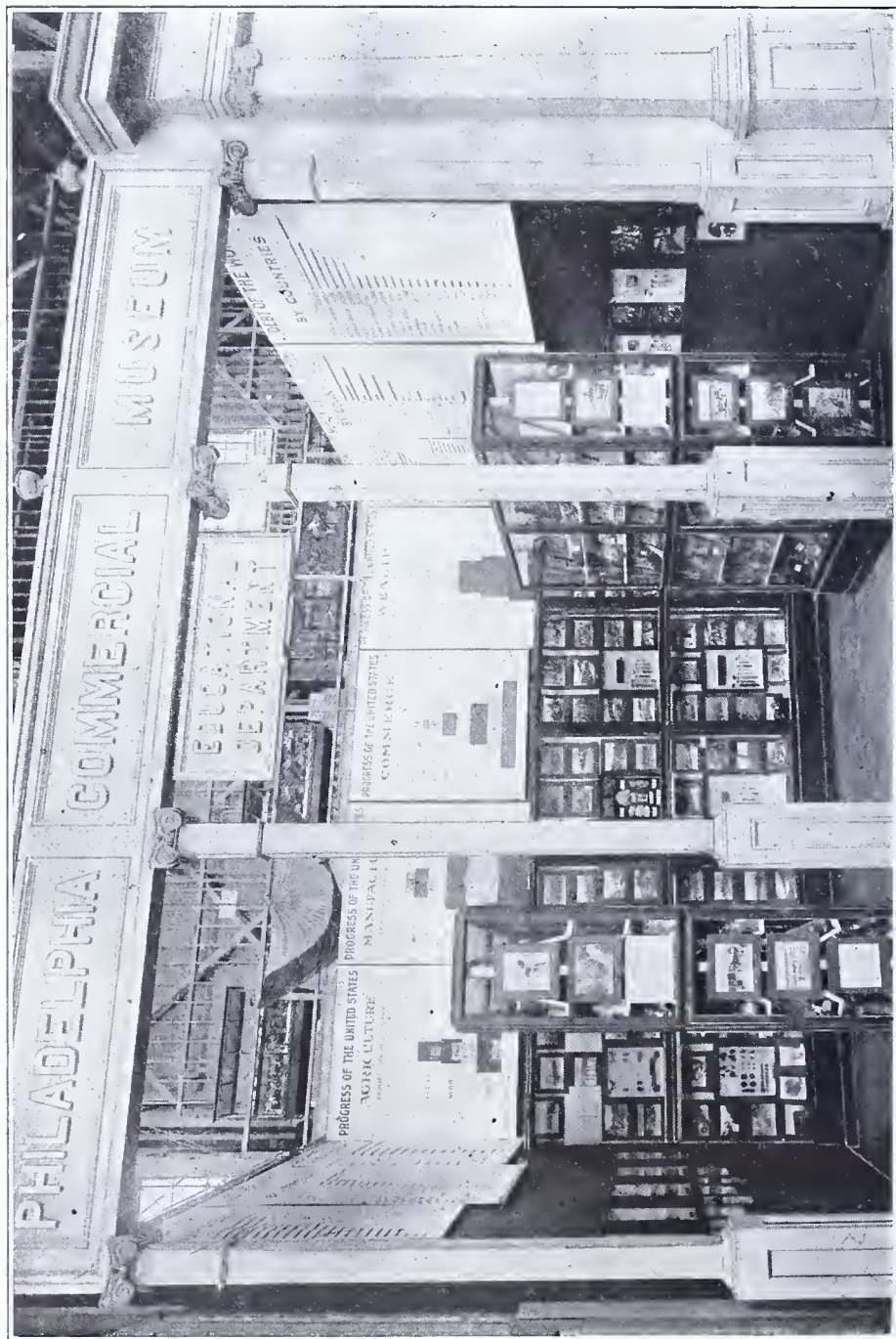
Plumb, Tatnall Paulding, Joseph Potter, George F. Payne, Francis B. Reeves, Stacy Reèves, Godfrey Rebmann, Coleman Sellers, Jr., Charles Emory Smith, Theodore C. Search, Edward T. Stotesbury, Benjamin Shoemaker, William W. Supplee, J. S. Stevens, E. K. Tryon, E. F. Toby, F. W. Taylor, William T. Tilden, N. A. Taylor, S. D. Vrooman, E. A. Van Valkenburg, William Wood, Stephen Whitman, Barclay Warburton, George D. Wetherill, Frank M. Zeller.

The appointment of this Committee gave an impetus to the work at an important stage, but the Committee was unable to accomplish all it desired on account of the restrictions placed upon the applicants for exhibit space. Mr. Potter, Chief of the Bureau of Manufactures, reports upon the whole subject as follows: "The object of the Department was to stimulate an interest upon the part of Pennsylvania manufacturers in the St. Louis Exposition, and to bring to the Fair as many exhibits as possible. In line with this thought a circular letter was addressed to about one thousand of the most prominent manufacturers of Pennsylvania. For competitive reasons the response was not at first satisfactory and it was necessary to supplement this circular with much individual correspondence explaining the advantages extended by the World's Fair officials, indicating the fact that

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there were no fixed charges for space, power, light and heat.

“After this condition had been fully impressed upon the Pennsylvania manufacturing interests, the applications for space were made in greater volume. The first general circular of this Department, and each succeeding one, very completely covered all questions of information. Three more general circulars were issued and addressed to Pennsylvania manufacturers. In order that no corporation or firm which might become a possible exhibitor should not have an opportunity to make an exhibit, this Department secured from the Boards of Trade and from the Chambers of Commerce of Philadelphia, Pittsburg and other cities and towns, a list of those manufacturers who might be expected to become exhibitors. Each of these circulars in succession supplemented additional facts and information, the possession of which was demonstrated as a necessity through individual correspondence. This increased publicity amplified by literature furnished by the Officers of the Department of Manufactures of the World’s Fair had the desired effect. Blank applications for space were furnished all those who made such a request, but it was positively emphasized by this Department that the Pennsylvania Commission acted merely as an intermediary



PHILADELPHIA COMMERCIAL MUSEUMS IN EDUCATION

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in stimulation of State interests, and that it was in no way responsible for the acceptance or rejection of application for space made by Pennsylvania firms.

“The necessity for such a course became obvious very soon after the creation of this Department for the reason that the St. Louis officials most emphatically announced that an application for space might or might not be rejected, the decision resting entirely with themselves. It was announced that it was not so much the desire of the officials to secure a great number of exhibits from this or any other State as it was the question of securing the most representative firms in their class of manufacture. To illustrate, it was said that while there were a great number of firms in Pennsylvania engaged in the manufacture of agricultural implements, it was desired to avoid duplication, and that the most important and representative firms in that, as well as in other lines, would be selected as the representatives of that class of manufacture. This ruling upon the part of the St. Louis officials for the time created more or less dissatisfaction. It was, however, arbitrary and its provisions were at all times emphasized by the Pennsylvania Department of Manufactures. I name, by way of illustration, manufacturers of agricultural implements,

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but the rule governing exhibits applied to all lines of manufacture.

“The Committee on Manufactures of the Pennsylvania Commission under which this Department carried on its work organized August 3, 1903. At that time three of the four general circulars of general information had been issued. The Committee was composed of George T. Oliver, Chairman, James Pollock and George H. Earle. Chairman Oliver and Mr. Pollock attended all the meetings of the Committee on Manufactures. An office was opened at 717 Real Estate Trust Building, which office was shared by George J. Brennan, Secretary of the Executive Committee.

“Approximately 10,000 letters in circular form, additional to the individual correspondence with the respective firms negotiating for space, were mailed. In many instances there were a half dozen of these written to each corporation. After this volume of correspondence had been issued an obstacle was met with for a time which made it exceedingly difficult to measure the success of its efforts. For competitive reasons a majority of manufacturers who had applied for space at St. Louis declined to make known whether the same had or had not been granted. Not only did many of the Pennsylvania manufacturers decline to give this information regarding their exhibits, but

LIBERAL ARTS AND MANUFACTURES.

the same rule was enforced by the World's Fair management, which refused to give any information bearing upon the names of exhibitors until after they had appeared in the official catalogues."

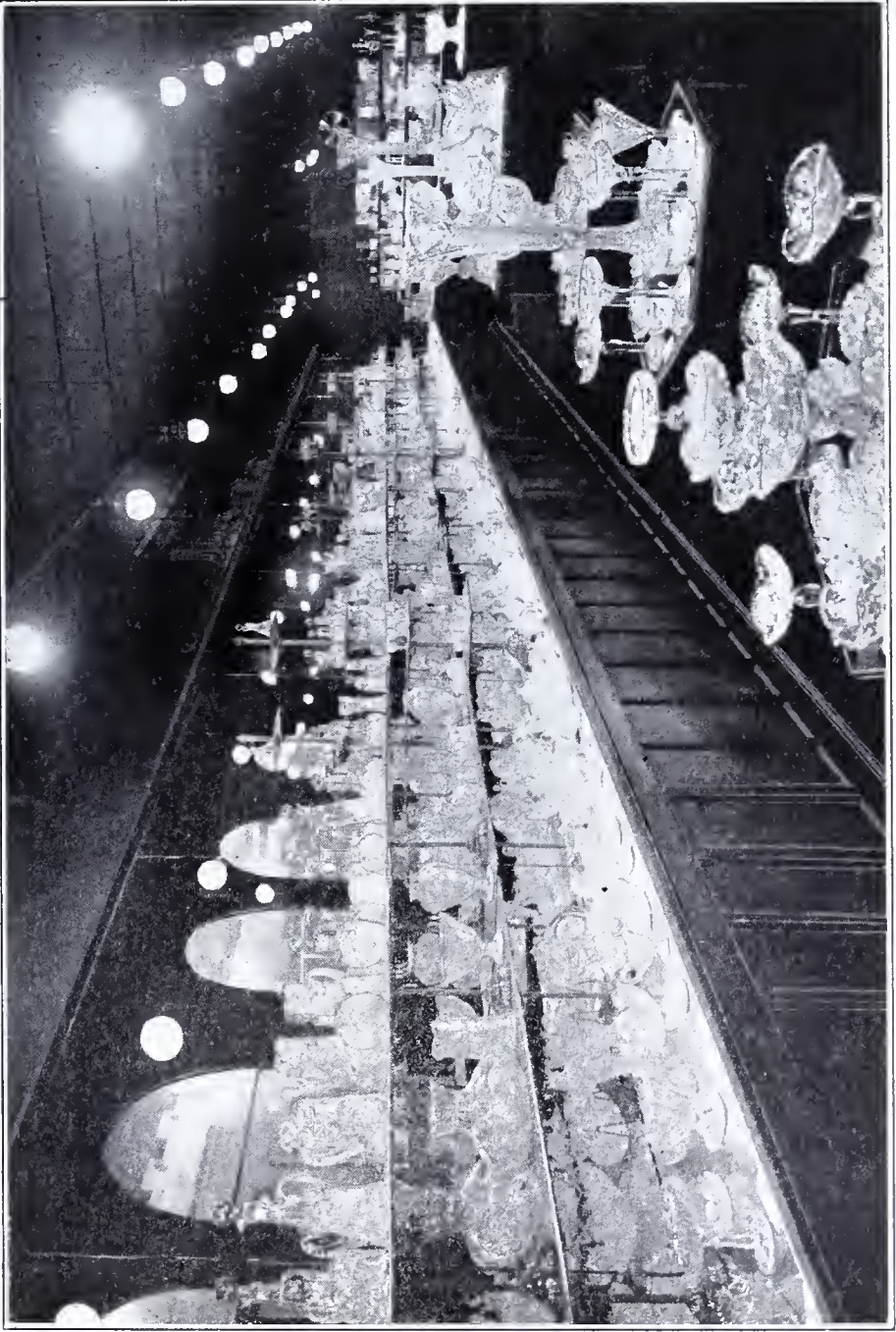
The Philadelphia Commercial Museums maintained in the Manufactures Building a Bureau of information, in addition to which it had an exhibit in the Palace of Education. The report upon these exhibits is made by Mr. William S. Harvey, Chairman of the Commercial Museums Committee, and a member of the Commission, as follows:

"The fund set aside for Commercial Museums exhibits at St. Louis, \$5,000 was applied to the installation and maintenance of two exhibits, one in the Palace of Manufactures illustrating the work of the Bureau of Information and Foreign Trade Department of the Commercial Museums of Philadelphia, the other in the Palace of Education showing one of the school collections of miniature museums supplied to the public schools of the State of Pennsylvania as an aid to nature study and the teaching of commercial geography. On these two exhibits the International jury by unanimous vote awarded the Philadelphia Museums two grand prizes.

"The exhibit made by the Bureau of Information and foreign Trade Department of the Commercial

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Museum in the Palace of Manufactures was intended as a demonstration of the elaborate and practical system adopted by that institution in the collection, filing and distribution of information concerning foreign markets, foreign opportunities, business conditions, and also concerning American manufacturers and their products. It was also equipped with a large line of information for the use of visiting merchants. Among other material on file were some sixty trade journals regularly received and open for inspection and use of visitors. Practically all the reliable trade directories of American manufacturers, a large collection of literature of a statistical and commercial nature, an index of the exhibiting manufacturers prepared and kept up to date were frequently used by merchants of the United States and from abroad. The walls of the exhibit were covered with interesting charts, showing the development of manufactures in the United States and the growth of export trade. The catalogues of practically all the leading manufacturers of the State were filed and indexed, and were found to be of very great value for reference purposes. An exposition was thus made of the resources of the State, the development and the utilization of its raw products and wide publicity given to its manufacturing interests.



QUAKER CITY CUT GLASS EXHIBIT.

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“The exhibit in the Palace of Education was a sample of the school collections which are being sent out by the Philadelphia Museums to the public schools of Pennsylvania. This collection comprises samples of the principal articles of commerce consumed in the United States, showing them in all stages of production, transportation and manufacture. It is classified according to the vegetable, animal and mineral kingdoms, and contains over three hundred separate series of exhibits illustrated by one hundred and twelve eight by ten photographs from negatives belonging to the Museums and by twenty-five specially prepared maps showing the world distribution of the various exhibits. Included in this collection, for example, are samples of cotton in all stages from the plant to the finished product, with photographs showing methods of planting, picking, shipping and manufacture, and a map showing the distribution of cotton throughout the world. In the same manner the collection treats of silk, wool, flax, jute and the other fibres of commerce, coffee, tea and cocoa, the principal cereals, the most important timbers and ores of the world.

“Pennsylvania is the only State that has a Commercial Museum. The influence, merit and value of its work is recognized throughout the United States

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and in all foreign commercial countries, thereby reflecting great credit on the generous public spirit of the State and the City of Philadelphia, through whose support its operations are maintained. The detailed statement of expenditures with vouchers attached is in the hands of the Executive Officer of the Commission, displaying an unexpended balance of more than \$300."

The very brilliant display of the Quaker City Cut Glass Company in the Varied Industries Building attracted great attention, and was properly considered one of the most beautiful exhibits at the Exposition. The factory of the Company, where this exhibit was manufactured, is located in Philadelphia and is the largest cut glass factory in the world. The line of cut glass displayed at this exhibit was more than twice the largest ever assembled. The award received was Grand Prize. The booth in which the exhibit was displayed was fifty-five feet by twenty feet, built of black walnut, and, with the exception of the lettering and other trimmings in red and gold, everything was finished in black. Electric light was used entirely, all natural light having been excluded. The plan of this exhibit illustrated how most efficiently to display cut glass. The tables were covered with and the booth above the tables was lined with French

PENNSYLVANIA AT THE WORLD'S FAIR.

plate mirror. All display shelves were of plate glass supported by silver fittings. The tables were fitted underneath with shelves to hold stock not on display and all this shelving and stock were closed in with neat panels of black walnut.

The exhibit contained the Roosevelt revolving punch bowls on stands. These punch bowls are made in three parts, each part revolving independently and all assembled by concealed silver mountings. Among the various rich cuttings which decorated the high sides and flared tops of each of these bowls were four hundred and eleven stars. These bowls, named after the President, are the most richly decorated large pieces of cut glass ever made and show to what extent the art of glass cutting may be carried. The revolving compotes, made in five parts, each part differently designed, and all assembled by concealed silver mountings are the daintiest articles in cut glass. The tall Myrtlewood and Empress vases so conspicuous in this exhibit also received special notice.

The most extraordinary article in this display, however, was the St. Louis vase, measuring more than five feet seven inches, and being the largest cut glass article ever produced. Nothing in cut glass ever merited or received so much attention. The shape

LIBERAL ARTS AND MANUFACTURES.

of the vase as well as the decorative cuttings are entirely new. A new star named the Louisiana Purchase Star was specially devised for this vase. Whether viewed from the point of size, shape, plan of decoration, technique of workmanship, finish or general effect, this vase is and for many years no doubt will remain the wonder of the cut glass world. The smaller articles on exhibit were no less efficient in artistic value. Among the numerous patterns the Du Barry, Roosevelt, Empress and Marlborough cuttings were possibly the most elaborate, while in all over three hundred different patterns were used on the different articles of exhibition.

The entire display was made up of punch sets, vases, compotes, jugs, decanters, wine, lemonade, liquor and water sets; bowls, bon bons and nappies, plain and footed; trays, plates, sugar and cream sets, and every other article that is practicable in cut glass, including a line of fancy shapes in vases, rugs, compotes and stemware. The variety of shapes and sizes of cut glass articles, the variety of designs, depth of cuttings, technique of workmanship, high lustre of finish as well as the high quality of lead glass used, all of which are so necessary to produce the refined prismatic brilliancy of high art cut glass, were all notable features of this exhibit and all combined to win for it the

PENNSYLVANIA AT THE WORLD'S FAIR.

highest, competitive, meritorious award ever granted to any exhibit of its kind.

Other exhibits in these Departments covered quite thoroughly the varied products of Pennsylvania manufacturers. The silk industry of the State was fully shown, together with cutlery, productions in iron, polishing machinery, hardware in all varieties, apparatus and processes for heating and ventilating buildings, equipment used in the manufacture of textile fabrics, leather, furs and the clothing industries generally. In other groups in the Palace of Varied Industries were exhibits of every variety of fine stationery, clock and watch making, productions in marble, bronze and iron, decoration and fixed furniture of dwellings, office and household furniture, ceramics, and carpets, tapestries and fabrics for upholstery—altogether making a very complete and satisfactory representation for the State in these several branches of industry.

APPENDIX.

CATALOGUE AND AWARDS.

CATALOGUE AND AWARDS.

THE FOLLOWING LISTS OF PENNSYLVANIA EXHIBITORS IN ALL DEPARTMENTS OF THE ST. LOUIS EXPOSITION, 1904, HAVE BEEN COMPILED FROM AUTHORITATIVE SOURCES, AND COMPARED WITH THE OFFICIAL CATALOGUES—THE AWARDS TO THE DIFFERENT EXHIBITS ARE INDICATED BY GRAND FOR GRAND PRIZE; GOLD FOR GOLD MEDAL; SILVER FOR SILVER MEDAL, AND BRONZE FOR BRONZE MEDAL.

DEPARTMENT OF FINE ARTS.

GROUP 9. <i>Oil Paintings.</i>		
PHILADELPHIA ARTISTS:		
ADOLPHE, ALBERT JEAN.		
Portrait of Mrs. A.		
Portrait of Student.		
Portrait of the Artist.		
ANSHUTZ, THOMAS P.		
Portrait of Mr. Trask.		
AHRENS, ELLEN WETHERALD..	Bronze.	
Sewing, a Portrait.		
Portrait of Elwood Johnson.		
BEAUX, CECELIA.	Gold.	
Ernesta.		
The Dreamer.		
Portrait of Mr. Gilder.		
BONSALL, ELIZABETH.		
The New Tenant.		
BREGLER, CHARLES.		
Portrait of My Sister.		
BRIGHT, JOHN IRWIN.	Bronze.	
La Douanna.		
BRYANT, EVERETT L.		
From the Land of the Yellow Dragon.		
BUTLER, MARY.		
Monhegan Coast.		
COOPER, COLIN CAMPBELL.		
Broad Street Station.		
Skyscrapers, Chicago.		
Pennsylvania Avenue, Washington.		
Cathedral at Chartres.		
Broad Street, Philadelphia.		
COOPER, EMMA LAMPERT.	Bronze.	
Weaving Homespun.		
CRAVEN, LAURA.		
Ponte Vecchio, Florence.		
St. Clement's, Rome.		
Sunlit Canal in Venice.		
D'ASCENZO, NICOLO.		
Vermont Hills.		
EAKINS, THOMAS.	Gold.	
Cardinal Martinelli.		
The 'Cello Player.		
Portrait of Mr. Kenton.		
Dextra Victrix.		
Conclamautes Salutat.		
Clinic of Prof. Gross.		
Clinic of Prof. Agnew.		
The Crucifixion.		
EARLE, ELINOR.	Bronze.	
Reading Aloud.		
Firelight.		
GARBER, DANIEL.		
The Road to Chester.		
Jessy.		
The Susquehanna.		
GRAYSON, CLIFFORD P.		
Portrait of Mr. Castello.		
HOLME, LUCY D.		
Holiday Occupations.		
JORDAN, DAVID WILSON.		
Autumn Oaks.		
LAMBERT, JOHN.		
Portrait of Mrs. Cadwalader.		
Portrait of Colonel K.		
Two other Portraits.		
LINTON, FRANK B. A.,		
An Evening's Reminiscence.		
MAGEE, J. C.		
The Bay.		
Early Morning. (Marine)		
NEWMAN, CARL.		
Fireglow. (Loaned)		
NORRIS, S. WALTER.		
The Red Boat.		
PAUL, WILLIAM H., JR.		
Waiting.		

PENNSYLVANIA AT THE WORLD'S FAIR.

PERKINS, MARY SMITH. Peggy.		CASTELLO, EUGENE Phila. Gate of Justice, Cairo.
POST, MARY A. Portrait of W. C. Dodge.		COOPER, COLIN CAMPBELL Phila. Broad Street, New York.
REED, LILLIAN R. The Land of the Sky.		COOPER, EMMA LAMPERT..... Phila. The Weaver, Canada.
ROSENTHAL, ALBERT. Portrait of Col. Muckle. Portrait of M. Grayson. Portrait of Miss I.	Bronze.	The News of the Day. Lincoln Cathedral. Uncle Jacob.
SARTAIN, EMILY. Portrait of Frederick Fraley.		DANA, CHARLES E..... Phila. Tomb of Sultan Hasan, Cairo. On the Seine, France.
SCHOFIELD, W. ELMER. Winter Morning	Silver.	DAWSON, GEORGE WALTER..... Phila. Lotus Flower. Water Lily.
SLOAN, JOHN. Independence Square. Young Mother.		Duke of Lante's Garden, Italy.
THOMAS, PAUL K. M. Portrait of Mrs. Taylor.	Bronze.	DILLAYE, BLANCHE..... Phila. Little Venice, Evening.
WHEELER, JANET. Ethel, the Communicant. Three Portraits.	Silver.	DULL, JOHN J..... Phila. Landscape.
WOOD, LOUISE. Une Femme Serieuse.	Bronze.	HAYDOCK, MAY S..... Phila. Bride Roses. Chrysanthemums.
YOUNG, CHARLES MORRIS. Early Spring. The Frozen Mill Race. December Morning. Winter.	Silver.	LITTLE, JOHN WESLEY.... Fort Washington. The Drinking Place.
YOUNG, ELIZA M. C. New England Coast.		REDMOND, MARGARET..... Phila. Iris.
PITTSBURG ARTISTS:		SARTAIN, HARRIET..... Phila. Roses, Yellow Daisies.
BUGHMANN, VIRGINIA, F. Studio Corner.		SLOAN, MARIANNA, Ft. Washington. Sunlight and Shadow. Bronze
HAILMAN, JOHANNA WOODWELL. Market Place, Quebec.		SNOW, E. TAYLOR..... Phila. Cleaning the Delft, Holland.
SOTTER, GEORGE WILLIAM. Afternoon Light. Mid-Winter.		WOOD, LOUISE..... Phila. A Harvest Field, England. Six and Sixty.
WOODWELL, JOSEPH R. Live Oaks. The Whirlpool, Niagara. St. John's River.	Bronze.	YOUNG, CHARLES MORRIS..... Phila. Frosted Fields.
REGISTER, EMMASITA..... Ardmore.		
OAKLEY, VIOLET..... Villanova.		
Study for Mural Decoration for Church.		
<i>Water Colors and Pastels.</i>		<i>Miniatures.</i>
ABBOTT, ELENOR PLAISTED..... Phila.		AHRENS, ELLEN WETHERALD..... Phila. Portrait of Mary Ballard. Emily.
ANSUTZ, THOMAS P..... Fort Washington.		ARCHAMBAULT, A. MARGARETTA..... Phila. A Colonial Dame.
BRECKENRIDGE, HUGH H. Fort Washington.		TAYLOR, EMILY DRAYTON..... Phila. Portrait of Mrs. Gazzam. Portrait of Miss Lesley.
Lantern Glow. Rest. The Red Tree.		WOOD, LOUISE..... Phila. Nardelli.
BRIGHT, JOHN IRWIN..... Phila.		
The Harbor,		
		<i>Illustrations.</i>
		GREEN, ELIZABETH SHIPPEN, Villanova. Bronze.
		Head Piece to Perdita's Lovers. An Old Country House. My Lady Clemency Entertained a Guest. Buoldemonte Rides to His Bride. Three Illustrations to Antiques.

CATALOGUE AND AWARDS.

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| <p>HARDING, CHARLOTTE, Phila. Silver.
 Robin Hood. Six Panels.
 In the Moonlight.
 The Cop—Hester Street.
 Unloading Wood.
 The Old Witch.
 Election Parade.
 She may have carried Broomsticks.
 The Witch's Cat.
 Illustrations for "Statesmen of To-morrow."</p> <p>OAKLEY, VIOLET, Villanova. Gold.
 Spring Cover Design.
 March Cover Design.
 September Cover Design.
 Three Illustrations to Vashti.</p> <p>SMITH, JESSIE WILCOX, Villanova, Silver.
 Two Child Calendars.
 Cover Design for Calendar.</p> <p>STEPHENS, ALICE BARBER.....Phila.
 The Doctor bound up the Wrist.
 The Doctor Saw His Grief.
 The Schoolmistress.
 "You're Mad to let this go on."</p> <p style="text-align: center;"><i>Etchings.</i></p> <p>ROSENTHAL, ALBERT..... Phila.
 Rev. W. H. Furness.</p> <p>ROSENTHAL, MAX..... Phila.
 Washington. After Stuart.</p> <p>SLOAN, JOHN..... Phila.
 Five sets original Etchings, for the works of de Kock.</p> <p style="text-align: center;"><i>Sculpture.</i></p> <p>CALDER, A. STERLING, Phila Silver.
 Model for Sun Dial for Fairmount Park.
 Bust of B. B. Comegys.
 Narcissus.
 Bust of Athlete.
 Bust of Helen Harte.
 Man cub.</p> <p>COHEN, KATHERINE M.....Phila.
 Priscilla, in Bronze.</p> <p>COX, CHARLES BRINTON.....Phila.
 Incident of a Bull Fight.
 El Texan Vaquero.
 The Coyote.</p> <p>GRAFLEY, CHARLES..... Phila.
 Vulture of War.
 Symbol of Life.
 From Generation to Generation.
 In much Wisdom.
 Portrait Bust of Mrs. Grafley.
 Portrait Bust of Dr. Louis Starr.
 Portrait Bust of J. R. De Camp.
 Portrait Bust of James McManes.</p> <p>LAESSE, ALBERT I.....Phila.
 Turtle and Lizards.</p> <p>MIDDLETON, MARY P.....Phila.
 Portrait of Miss H.</p> | <p>MURRAY, SAMUEL, Phila. Silver.
 Mrs. Borie, Portrait Bust.
 William H. MacDowell, bust.
 Stewart Culin, statuette.
 Miss Alice Kurtz, Statuette.
 James M. Doyle, statuette.
 The Boxer, statuette.
 Archbishop Ryan, bust.
 Benjamin Eakins, bust.
 Thomas Eakins.
 F. B. A. Linton, statuette.
 Rev. James P. Turner.
 Child's Head.
 Col. A. Reynolds, statuette.</p> <p>STEWARDSON, EDWARD..... Phila.
 The Bather, from Academy of Fine Arts.</p> <p>TADD, EDITH J.....Phila.
 Portrait Medallion.</p> <p style="text-align: center;"><i>Architecture.</i></p> <p>ALDEN, & HARLOW.....Pittsburg.
 Carnegie Library. Elevation.</p> <p>BOYD, DAVID KNICKERBOCKER.....Phila.
 Saturday Club, Wayne.
 House near Wayne.
 Two Houses at Wynnewood.
 Two Houses on Pine Street.
 Inglenook.</p> <p>COPE & STEWARDSON, Phila. Silver.
 Washington University, St. Louis.
 Busch Building, Washington University.
 Law School, University of Philadelphia.
 Dining Hall, University of Pennsylvania.
 Tower on Thirty-sixth Street Dormitory.
 Library, Bryn Mawr College.
 Municipal Building, Washington.
 House at Princeton.</p> <p>DAY, FRANK MILES & BROTHER....Phila.
 Horticultural Hall, Philadelphia.
 Building of American Baptist.
 Publication Society.
 Gymnasium, University of Pennsylvania.
 Two interior views of Houses. in Philadelphia.</p> <p>EYRE, WILSON, Phila. Silver.
 House in Ambler.
 House in Delaware.
 Sunny House with Sheltered Garden.
 Gardens near Philadelphia.
 Dining Room for Dr. Hart.
 House at Youngstown, O.
 City Trust Company, Philadelphia.
 Residence at Torresdale.
 Stable and Garden at Strafford.
 House near Jenkintown.
 Garden for Beauveau Borie.</p> <p>KELSEY, ALBERT..... Phila.
 General Plan for rebuilding of Chatauqua.
 Civic Centre.
 Arts and Crafts Village.</p> |
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PENNSYLVANIA AT THE WORLD'S FAIR.

Water Gate to Hall of Philosophy.
The Pier House.
All these were Chatauqua plans.
RANKIN, KELLOGG & CRANE, Phila. Silver.
United States Building, Camden.
United States Building, Indianapolis.
Agricultural Building, Washington
Three Sketches.
Church in Germantown.
St. James Hall, Philadelphia.
SEELER, EDGAR, V.....Phila.
Astronomical Observatory, University of
Pennsylvania.
Church, Philadelphia.
Real Estate Trust Building, Philadelphia.
SEELER, EDGAR V. & FRANK C. ROBERTS Co.
Phila.
Penn Mutual Building, Boston.
Milk Street Entrance.
Milk Street front.
Entrance Corridor.

GROUP 14.

Applied Arts.

GODWIN, ALFRED.....Phila.
Four Glass Windows showing,

Angel of the Annunciation.
Virgin Mary.
Knights in Armor.
Angel Gabriel.
HAYDOCK, MAY S.....Phila.
Copper Watch Fob, enameled.
KORONSKI, ANDRE.....Phila.
Necklace of beaten silver.
Silver pin, blue pendant.
Dog's head hook, silver.
Two silver pins.
Winged scarab in silver.
Three pins, different designs.
Twelve book plate designs.
MAROT, ELIZABETH G., Phila. Bronze.
Dislay of Art Book Binding.
MERCER, HENRY C., Doylestown. Grand.
Sixty cases of set tiles.
Fourteen glazed mugs.
Six glazed sconces.
Four glazed boxes.
Panel for Church.
PRICE, WILLIAM L.....Phila.
Various designs for tables, chairs and
benches.
UPTON, MARY H.....Phila.
Display of Art Book Binding.

DEPARTMENT OF EDUCATION.

GROUP 2.

Secondary Education.

SPRING GARDEN INSTITUTE.....Phila.
Methods of work. Silver.

GROUP 3.

Higher Education.

BRYN MAWR COLLEGE.....Bryn Mawr.
Photographs, publications, special work.
Grand.
HAVERFORD COLLEGE.....Haverford.
General Exhibit. Silver.
Photographs, pamphlets. Bronze.
PENNSYLVANIA, UNIVERSITY OF.....Phila.
Chemistry course and apparatus. Silver.
PENNSYLVANIA STATE COLLEGE, State College
Quantitative analysis. Silver.
THOMAS, M. CAREY....Bryn Mawr College.
Monograph on education of women.
Gold.
WAYNESBURG COLLEGE.....Waynesburg.
General College work.
INTERNATIONAL CORRESPONDENCE SCHOOLS,
Scranton.
Phonograph system of teaching language,
work in the various Departments.
Gold.

GROUP 4.

Work by Students.

PENNA. ACADEMY OF FINE ARTS....Phila.
Students' work in drawing, painting,
modeling, architectural design. Grand.
SCHOOL OF DESIGN FOR WOMEN.....Phila.
Work in applied art. Gold.
SCHOOL OF INDUSTRIAL ART.....Phila.
Applied art, original designs. Gold.
SPRING GARDEN INSTITUTE.....Phila.
Mechanical drawings. Bronze.

GROUP 5.

Education in Agriculture.

PENNSYLVANIA STATE COLLEGE AGRICUL-
TURAL EXPERIMENT STATION.
Maps, charts, models, photographs, ma-
terials, objects, books, apparatus.
Bronze.

GROUP 6.

Education in Commerce and Industry.

INDIAN SCHOOLS Carlisle.
Photographs of Indian Chiefs, students.
Silver.
COMMERCIAL MUSEUMSPhila.
Material for school use. Grand.

CATALOGUE AND AWARDS.

PHILA. TEXTILE SCHOOL.....Phila.
 Work of students. Gold.
 SOLDIERS' ORPHANS' INDUSTRIAL SCHOOL,
 Scotland. Gold.
 Students' work. Gold.
 WILSON, MRS. W. P.....Phila.
 Special exhibit. Silver.

GROUP 7.

Education of Defectives.

ALLEN, EDWARD ELLIS.....Overbrook.
 Monograph on education of defectives. Gold.
 HOME TEACHING SOCIETY FOR THE BLIND,
 Phila. Gold.
 Alphabets, photographs, statistics, class. Gold.
 INSTITUTION FOR THE INSTRUCTION OF THE
 BLIND.....Overbrook.
 Special features of Institution plant. Grand.
 INSTITUTION FOR THE DEAF...Mount Airy.
 Photographs, statistics and pupils' work. Grand.
 WADE, WILLIAM.....Oakmont.
 Photographs, work of the deaf-blind. Gold.
 Benefaction to blind children. Gold.
 INSTITUTION FOR INSTRUCTION OF THE BLIND,
 Elwyn. Grand.
 Work in instruction. Grand.
 WESTERN PENNA. INSTITUTION FOR FEEBLE
 MINDED.....Polk.
 Methods of instruction. Grand.

GROUP 8.

Special Forms of Education.

INTERNATIONAL COR. SCHOOLS,...Scranton.
 Instruction by correspondence. Grand.
 WIGGINS, W. W. & Co.....Phila.
 Burlap for school use. Gold.

THE STATE EXHIBIT.

GROUP I.

Kindergarten and Elementary Schools.

ALLEGHENY Gold.
 Manual training, drawing, basketry.
 BAINBRIDGE.
 Illustrative written work; drawing, botany.
 BEAVER FALLS.
 Course of study.
 BRADDOCK Silver.
 Manual training; music, language, draw-
 ing, course of study.
 BRISTOL.
 Drawing, kindergarten.
 BUCKS COUNTY, Middleton Township.
 Edge Hill School.
 Language; photographs; maps. Fair-
 field, Written work.

CHESTER.

Photographs; blank forms, written work,
 course of study.

CHESTER COUNTY

Gold.

Collective exhibit of Rural Schools:
 Stafford School, Tredyffrin Township,
 relief map; photographs of historical
 places, bound volumes.

DOWNINGTOWN, Bound volumes.

PAOLI, Photographs.

ERCILDOWN SCHOOL, Coatesville; photographs.

MODINA SCHOOL, Photographs.

CHATHAM SCHOOL, Photographs.

SCHUYLKILL SCHOOL, Photographs.

OAK GROVE, Photographs.

UNIONVILLE SCHOOL, Photographs.

BERWYN, Easton Township.

Drawings, photographs. Primary work.
 photographs, drawing.

LOCUST GROVE SCHOOL, London Grove Dist.
 Photographs.

MALVERN SCHOOL, Photographs.

PLEASANT GROVE SCHOOL....West Town.
 Photographs.

CAMBRIA COUNTY, Reade Township.
 Bound volumes.

CUMBERLAND COUNTY.

Volume of History of Schools in Cumber-
 land County.

CLEARFIELD.

Manual Training; sewing.

CONSHOHOCKEN.

Silver.

Maps; bound volumes; sewing.

CONNELLVILLE.

Written work; color work.

DELAWARE COUNTY.

McKINLEY SCHOOL, Darby Township.

Photographs, bound volumes; course of
 study.

WALLINGFORD SCHOOL.

Photographs.

UPPER DARBY, Haverford Township.

Photographs.

EBENSBURG.

Bound volumes of pupils' work.

ERIE.

Photographs; course of study.

FAYETTE COUNTY, Banning School.

Kindergarten work, drawing, nature work.

GREENE COUNTY, Morris District.

Illustrative language work; drawing.

Center Township, drawing.

GREENSBURG.

Drawing; bound volumes of pupils' work;
 course of study.

HARRISBURG.

Gold.

Basketry; color work; woodwork; course
 of study.

HAZLETON.

Course of study.

PENNSYLVANIA AT THE WORLD'S FAIR.

INDIANA COUNTY.

TOWNSHIP SCHOOLS. Gold.
Language; penmanship; drawing; photographs.

The Townships represented are:

WHITE TOWNSHIP, St. Clair School, No. 5.

EAST MAHONING, Hamill School.

WASHINGTON, Kettering School.

SOUTH MAHONING DISTRICT, Ambrose School.

YOUNG DISTRICT, Elders School.

GRANT DISTRICT, Hartinan School.

Kinnan School.

CONEMAUGH, No. 5 School.

MCCREIGHT, McCreight School.

RAYNE, McKee School.

Thompson School.

McHenry School.

MARION CENTER, Primary Room.

WHITE TOWNSHIP, Lutz.

East Pike.

BLACK LICK DISTRICT, Dixon School.

EAST MAHONING, Lowman School.

Stuchell School.

Mahoning School.

CHERRY TREE, No. 2 School.

YOUNG, Neal School.

HARMON DISTRICT, Harmon No. 3.

WASHINGTON DISTRICT, Kelley School.

Harmon School.

Lucas School.

Cummins School.

MONTGOMERY, Gipsy, No. 1.

Gipsy No. 2.

Hilsdale School.

Gettysburg School.

ARMSTRONG, John Fleming School.

Uncapher.

JOHNSTOWN.

Gold.

Manual training; bound volumes of pupils' work; drawing.

LANCASTER.

Photographs; charts on "Good Memory Work in High Schools;" collection of Lincoln Art Series.

LANSDALE.

Silver.

Photographs; drawings; written work; course of study.

LANSDOWNE.

Photographs. kindergarten work.

LEBANON.

Course of study.

LUZERNE COUNTY, Newport Township.

Drawing.

LOCKHAVEN.

Course of study.

LYCOMING COUNTY, Hepburn Township.

Photographs.

MILTON.

Bound volumes; color work; course of study.

MORRISVILLE.

Bound volumes of pupils' work.

MCKEESPORT.

Course of study.

MT. CARMEL; School blanks.

MIDDLETOWN; School reports.

MONTGOMERY COUNTY.

Cheltenham District; Photographs; drawing.

Ringing Hill School; Photographs; drawing course of study.

NEW BRIGHTON, School reports.

NORRISTOWN.

Gold.

Sewing; manual training; photographs; drawing; course of study.

OIL CITY.

Gold.

Photographs; bound volumes; "Bird Day Book."

PHILADELPHIA.

Kindergarten; grade work; reports; course of study in each subject; forms and blanks used in schools; J. Liberty Tadd's system illustrated; sewing; manual training; night schools, photographs; bound volumes of pupils' work.

PHOENIXVILLE.

Students' note book; bound volumes of pupils' work; photographs; color work.

PITTSBURG.

Course of study.

POTTSTOWN.

Course of study; color work; photographs; bound volumes of pupils' work.

PIKE COUNTY.

Matamoras; nature study; drawing; school-building plans; bound volumes.

READING.

Gold.

Photographs; course of study; bound volumes of pupils' work; drawing.

SCHOOL CITY.

Photographs; pamphlets; badges; bound volumes.

SHARON.

Drawing.

SOUTH FORK.

Bound volumes of pupils' work.

SCRANTON.

Kindergarten; course of study.

SUNBURY.

STATISTICAL reports.

STEELTON.

Silver.

Course of study; bound volumes of pupils' work; brush work; drawing.

TIDIOUTE.

Manual training; drawing.

TITUSVILLE.

Course of study.

CATALOGUE AND AWARDS.

WEST CHESTER. Bound volumes of pupils' work; course of study; color work; sewing; manual training; basketry; students' note books; photographs.	Gold.	MORRISVILLE. Bound volumes of students' work.	
WARREN. Photographs; pupils' class work; manual training; sewing; weaving and basketry.	Gold.	MILTON. Bound volumes; science.	
WILLIAMSPORT. Kindergarten; course of study; photograph color work; raffia; bound volumes of pupils' work; note books of students.	Gold.	NORRISTOWN. Photographs; brush work; manual training; mechanical drawing.	
WAYNESBORO. Course of study.		OIL CITY. Photographs; science work; bound volumes.	
WILKINSBURG. School blanks.		PHILADELPHIA. Boys' HIGH SCHOOL.	Grand. Gold.
YORK. Course of study; volume containing photographs and school statistics.		Photographs; publications of alumni; manual training; bound volumes of students' work.	
BROCKIE & HASTINGS. Interior and exterior plans of Rural School Buildings.		GIRLS' HIGH SCHOOL. Photographs.	Gold.
		POTTSTOWN. Photographs; drawing.	
		PHOENIXVILLE. Botany; drawing; photographs; science.	
		READING. Photographs; mechanical drawing; pen work; brush work; bound volumes of students' work; work in science; charts; insects.	Bronze.
GROUP 2. <i>Secondary Education—High Schools.</i>		SCRANTON. Photographs; minerals; brush work; bound volumes; mechanical drawing; botany; chemicals; geology; commercial work.	Gold.
BRISTOL. Color work; composition; botany; mechanical drawing.		STEELTON. Pen work; brush work; mechanical drawing.	
BRADDOCK. Bound volumes of science and literature; mechanical drawing.		SOUTH FORK. Bound volumes of students' work.	
CHESTER. Photographs; blank forms.		SCHAEFFER, N. C.Harrisburg	
CHESTER COUNTY. BAINBRIDGE. Illustrative work in mathematics.		Monograph of Township high schools.	
DOWNTOWN. Bound volumes of students' work.		TIDIOUTE. Manual training; brush work.	
PAOLI. Photographs.		WARREN. Photographs; manual training; domestic science; commercial work; sciences.	Bronze.
EBENSBURG. Bound volumes of students' work.		WILLIAMSPORT. Photographs; students. note books; composition; bound volumes.	Bronze.
ERIE. Photographs.		WEST CHESTER. Pen work; photographs; minerals; brush work; manual training; bound volumes mechanical drawings; science; charts.	
GREENSBURG. Bound volumes; science work.			
HARRISBURG. Brush work; mechanical drawing; botany.		GROUP 2. <i>Secondary Education—Normal Schools.</i>	
JOHNSTOWN. Bound volumes; photographs; science.		BLOOMSBURG. Photographs; nature work; charts; decorative work; model school work.	
LANDSOWNE. Drawing; bound volumes; mechanical drawing.		CALIFORNIA. Photographs; science and art work by students; model school display.	Silver.
LANSDALE. Bound volumes; mechanical drawing.			
LANCASTER. Charts; photographs; Lincoln Art Series.			
LUZERNE COUNTY, Newport Township. Color work.			

PENNSYLVANIA AT THE WORLD'S FAIR.

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| <p>CLARION.
Bound volumes; students' note books; photographs; publication of faculty.</p> <p>CUMBERLAND VALLEY.
Photographs; drawing.</p> <p>EAST STROUDSBURG.
Drawing; botany; Latin; literature; physiology; school management; zoology; geography; physiography.</p> <p>EDINBORO.
Photographs.</p> <p>INDIANA. Silver.
Manual training; instruction sheets; model school display; charts; students' note books; photographs; volume of penmanship.</p> <p>KUTZTOWN.
Photographs; mechanical drawing; charts; Sloyd; bound volumes.</p> <p>LOCK HAVEN.
Photographs.</p> <p>MANSFIELD.
Musical publications of faculty; photographs; note books.</p> <p>SLIPPERY ROCK.
Basketry; papier mache maps; photographs; nature study; knife work; science note books; publications of faculty.</p> | <p>MILLERSVILLE. Gold.
Publications of faculty; school reports.</p> <p>WEST CHESTER. Silver.
Manual training; history; literature; art; school publications; photographs</p> <p>WILKES-BARRE.
Manual training; brush work; mechanical drawing.</p> <p>DEPARTMENT OF PUBLIC INSTRUCTION.
Portraits; charts; reports; journals.
Collective Exhibit of Millersville; Bloomsburg; California; Clarion; Edinboro; Indiana; Kutztown; Lock Haven; Mansfield; Shippensburg; Slippery Rock; West Chester; East Stroudsburg Normal Schools. Gold.</p> <p>Collective Exhibit (another group) of Bloomsburg, Mansfield; Shippensburg; Kutztown; Clarion; Slippery Rock; East Stroudsburg Normal Schools. Silver.</p> <p style="text-align: center;">GROUP 6.</p> <p style="text-align: center;"><i>Education in Commerce and Industry.</i></p> <p>JUMONVILLE.
Photographs.</p> <p>CHESTER SPRINGS.
Photographs.</p> |
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DEPARTMENT OF MINES.

GROUP 115.

Working of Mines.

- BALDWIN LOCOMOTIVE WORKS**Phila.
Electric mine locomotives. Gold.
- DOWNIE PUMP Co.**.....Downieville.
Operating mine and deep well pumps. Silver.
- HOCKENSMITH WHEEL & MINE CAR Co.**
Penn Station. Silver.
Mine supplies; car wheels.
- HOWELL'S MINING DRILL Co.,** Plymouth.
Air and hand drills and drilling machines. Gold.
- IRON CITY TOOL Co.**.....Pittsburg.
Mining tools.
- KEYSTONE DRILLER Co.**.....Beaver Falls.
Mineral prospecting equipment. Grand.
Oil and deep wells in operation.
- STAR ELECTRIC FUSE WKS.** Wilkes-Barre.
Fuse caps and electric blasting apparatus. Silver.
- MINES AND MINERALS**.....Scranton.
Collection of lighting devices. Silver.

GROUP 116.

Minerals and Stones.

- AMERICAN CEMENT Co.**.....Coplay.
Cement rock, ground rock, clinker and cement.
- ASSOCIATION OF PORTLAND CEMENT MFRS.**
Grand.
Exhibits by the following:
- AMERICAN CEMENT TILE MFG. Co.,** Wampum
Cement roofing tile.
- LUPTON, DAVID SONS, Co.**Phila.
Cement-filled window and door frames.
- VULCANITE PAVING Co.**.....Phila.
Cement mosaic work. Gold.
- BEAVER FALLS ART TILE Co.**.....Pittsburg.
Glazed tile.
- BETHLEHEM STEEL Co.**....South Bethlehem.
Iron ores, coal, limestone.
- PHOENIX & GEORGE'S CREEK MINING Co.**
Phila.
Bituminous coal. Bronze.
- BORGNER, CYRUS**.....Phila.
Fire brick, tile, and gas retorts. Gold.

CATALOGUE AND AWARDS.

KEYSTONE COAL & COKE Co., Greensburg.	CARBON STEEL Co.....Pittsburg.
Bituminous coal.	Nickel steel plates.
KITTANNING BRICK & FIRE CLAY Co.,	ETNA IRON WORKS.....Pittsburg.
Pittsburg.	Process of boiler tube and flue manufac-
Clays and vitrified brick.	ture.
NERNST LAMP Co.....Pittsburg.	FORTER MILLER ENG. Co.....Pittsburg.
Rare earths, radium ores.	Gas producer.
OLSEN, TINIUSPhila.	GLASGOW IRON Co.....Pottstown.
Cement testing machine.	Flanged and pressed open hearth steel.
PITTSBURG COAL Co.....Pittsburg.	
Bituminous coal and coke.	Gold.
SHERWOOD POTTERY Co....New Brighton.	Collaborator, JAMES P. ROE
Glazed stoneware.	Gold.
Collaborator E. SWASEY.	Gold.
STATE COLLEGE OF PENNA....State College.	LAWRENCEVILLE BRONZE Co.. Pittsburg.
Coal, coke and other minerals.	Bronze castings.
U. S. GEOLOGICAL SURVEY, Washington, D. C.	LOCKHART IRON & STEEL Co....Pittsburg.
Collection of natural mineral waters.	Pig iron, mica bars, steel bars and angles.
Represented by the following exhibitors:	MESTA MACHINE Co.....Pittsburg.
BAIRD, WILLIAM.....Cambridge Springs.	Steel castings and photographs.
	Gold.
FOX, HORACE.....Saegerstown.	McCORMICK Co., J. S.....Pittsburg.
	Cupolas. Foundry.
	Gold.
GLACIER SPRING WATER Co.....Ephrata..	MERRITT & Co.....Phila.
	Expanded metal lockers.
	Gold.
HIRES, CHARLES Co.....Malvern.	PHILA. PNEUMATIC TOOL Co.....Phila.
	Keller rammer.
	Bronze.
RICKER, HIRAM & SONS.....Phila.	PAXSON, J. W. Co.....Phila.
Poland Springs Water.	Foundry equipment.
SHINN & Co., INC.....Phila	PHILA, RAIL & MACHINE Co.....Phila.
	Steel rails.
	Grand.
ROSSCOMMON WATER Co., South Bethlehem..	PITTSBURG CHAMBER OF COMMERCE, Pittsb'g.
Rosscommon water.	Steel rails.
	Grand.
	JONES & LAUGHLIN STEEL Co...Pittsburg.
	Cold rolled steel. Stud link chain.
	CARNEGIE STEEL Co.Pittsburg.
	Iron ores, structural shapes and rail sec-
	tions, steel rails.
	STAR ENCAUSTIC TILE Co.....Pittsburg.
	Tile.
	DAMASCUS NICKEL STEEL Co.... Pittsburg.
	Nickel steel.
	SHELBY STEEL TUBE Co.....Pittsburg.
	Seamless tubing.
	STANDARD UNDERG'D CABLE Co., Pittsburg.
	Underground wire cable.
	STANDARD CHAIN Co.....Pittsburg.
	Iron chain.
	HEEREN BROTHERS.....Pittsburg.
	Enameled emblems.
	Gold.
	NATIONAL TUBE WORKS.....Pittsburg.
	Sections of tubing.

GROUP 117.

Models, Maps, Photographs.

BETHLEHEM STEEL Co.....South Bethlehem	
Photographs of steel plant and process of	
manufacture.	
HIGHES, HARRY N.....Duquesne.	
Model coal barge dumper.	
KENNEDY, JULIAN.....Pittsburg.	
Blast furnace and rolling mill construc-	
tion.	Grand.
MESTA MACHINE Co.....Pittsburg.	
Designs of metallurgical appliances.	
PITTSBURG CHAMBER OF COMMERCE, Pittsb'g.	
Relief map.	Gold.
Collaborator G. M. LEHMAN	Silver.
PITTSBURG COAL Co.....Pittsburg.	
Model coal mining plant.	

GROUP 118.

Equipment and Processes for Handling and Smelting Ores.

BETHLEHEM STEEL Co...South Bethlehem.	
Heavy ordnance and its manufacture;	
special steel castings and forgings.	Grand.

Contributing to the Exhibit the following from Pittsburg:

THE ARMSTRONG CORK Co., BARLEY-FARREL	
MFG. Co., DR. JOHN A. BRASHEAR, HER-	
EEN BROTHERS, H. J. HEINZ Co., MAC-	
BETH-EVANS GLASS Co., PENNSYLVANIA	
SALT MFG. Co., PITTSBURG COAL Co.,	
PITTSBURG PLATE GLASS Co.	
PITTSBURG REDUCTION Co.Pittsburg.	
Aluminum and its products.	Grand.

PENNSYLVANIA AT THE WORLD'S FAIR.

- PRIMOS CHEMICAL CO.**.....Primos.
 Rare metals, tungsten, molybdenum,
 steel alloys. Gold.
 Collaborator, W. M. STEIN. Silver.
 Collaborator, GIDEON BOERICKE Silver.
PITTSBURG STEEL CO., THE.....Pittsburg.
 Process of steel nail manufacture.
SPANG, CHALFANT & CO......Pittsburg.
 Process of boiler tube and flue manufacture.
TABOR MANUFACTURING CO......Phila.
 Molding machines and metal cutting saws.
 Gold.
WESTINGHOUSE ELEC. & MFG. CO. E. Pittsb'g.
 Electric generators, motors, etc.
WESTINGHOUSE MACHINERY CO. Pittsburg.
 Gas engine.
WOOD, R. D. & Co......Phila.
 Gas producer, scrubber and holder. Gold.
WEIMER, EDGAR A......Lebanon.
 Air or steam dumping slag car. Gold.
WHARTON, JOSEPH.....Phila.
 Historical nickel exhibit. Gold.
WORTH, BROS., Co......Coatesville.
 Steel plates, sheets, boiler heads. Grand.
- GROUP 119.
- Literature of Mining.*
- PENNSYLVANIA, STATE OF**.....Harrisburg.
 Geological survey. Gold.
 "MINES AND MINERALS"Scranton.
 Publication.
PENNSYLVANIA BUREAU OF MINES.
 Report.
- STATE EXHIBIT.
- Special Award to Pennsylvania for "the
 best, most complete and most attractive
 installation."
- GROUP 115.
- PENNSYLVANIA, STATE OF**
 Collective Mine Exhibit. Grand.
 Collaborator, PROF. LOUIS E. REBER.
 Gold.
PENNSYLVANIA STATE OF,
 Anthracite Mining Exhibit. Grand.
PENNSYLVANIA STATE COLLEGE.
 Model coke tipple and coke ovens. Gold.
- GROUP 116.
- PENNSYLVANIA STATE OF**.....Harrisburg.
 Crude and refined petroleum. Gold.
ABRASIVE MATERIALS CO.
 Carborundum in different grades.
ACADEMY OF NATURAL SCIENCES.....Phila.
 Collection of coal fossils.
ALLENTOWN IRON Co......Allentown.
 Iron ore.
ALLISON, D. F......Howard.
 Brown stone...
- AMERICAN CEMENT Co.**.....Coplay.
 Cement rock and finished product. Gold.
AMERICAN PLUMBAGO Co......Reading.
 Graphite.
AMY & Co......Greenville.
 Blue stone.
ATLAS PORTLAND CEMENT Co., Northampton
 Cement rock and finished product.
ANTHRACITE COAL COMPANIES.
 Anthracite coal.
AVONDALE MARBLE Co......Avondale.
 Statuary marble.
BEAVER FALLS ART TILE Co. Beaver Falls.
 Process of manufacture of enamel wall
 and vitreous tile. Gold.
 Collaborator F. W. WALKER. Silver.
BERWIND-WHITE COAL Co......Phila.
 Bituminous coal.
BITTINGER & EBERLY.....Bittinger.
 Limestone.
BLERNBY, CHRISTIAN.....Lycoming.
 Sandstone.
BONNEVILLE CEMENT Co......Siegfried.
 Cement rock, ground, clincker and cement.
BRANDYWINE SUMMIT KAOLIN & FELDSPAR
Co......Phila.
 Feldspar, Kaolin, china, clay, chinaware.
BRINKLEY, D. L......Adamstown.
 Red sandstone.
BROOKSIDE CLUB.....Williamsport.
 Black marble.
BUTLER JUNCTION COAL Co., Butler Junction.
 Bituminous coal.
CAMBRIA FIRE BRICK Co......Figert.
 Fire clay, crude, calcined and in bricks.
CAMBRIA STEEL Co......Johnstown.
 Bituminous coal.
CARNEGIE STEEL Co......Pittsburg.
 Iron ore.
CARR, MILLARD.....Lapps.
 Limestone.
CHAMBERLIN, W. B......Danville.
 Iron ores.
CHRONISTER, C. R......New Oxford.
 Limestone.
CLEARFIELD FIRE BRICK Co......Clearfield.
 Fire clay, crude, calcined, and in bricks.
COLUMBIA BRICK Co......Columbia.
 Crude clay, partly prepared clay and brick.
COMMERCIAL COAL MINING Co......Phila.
 Bituminous coal.
CONKLING-ARMSTRONG Co......Phila.
 Terra-cotta pieces, capping the shafts of
 stone and brick.
CONSHOHOCKEN STONE QUARRY Co....Phila.
 Limestone.
COPLAY CEMENT MFG. Co......Coplay.
 Cement rock, ground rock, clincker and
 finished cement. Bronze.

CATALOGUE AND AWARDS.

CORNWALL ORE BANK CO.Cornwall.	GWINNER, FREDAllegheny.
Iron ore.	Sandstone.
COXE BROTHERS, INC.....Drifton.	HARBISON-WALKER REFRACTORIES CO.,
Anthracite coal.	Pittsburg.
DE HUFF, A. G.....Lebanon.	Fire clay and products.
Sandstone.	HART, SOLOMON O.....Cogan House.
DAVIS & HARRIS.....Rock Point.	Iron ores, clays and brick.
Sandstone.	HARTMAN, JOSEPH & SON.....Pittsburg.
DELANEY FIRE BRICK CO. .Fairchance.	Sandstone.
Fire clay, calcined clay and brick.	HARTZELL, H. K.....Phila.
DELAWARE & HUDSON CANAL CO., Scranton.	Magnetite and semi-hematite.
Anthracite coal.	HENDRICKS, WINFIELD, Schuylkill Haven.
DEXTER PORTLAND CEMENT CO...Nazareth.	Sandstone.
Cement rock, ground rock and finished	HIBBARD, JESSE.Lima.
cement.	Gneiss and granite.
DIXON WOODS CO.....Pittsburg.	HOWELL, DR. WILLIAM.....Lycoming.
Fire clay, calcined clay and brick.	Ore paints.
D. L. & W. R. R. Co.....Scranton.	HUMMELSTOWN BROWN STONE Co., Walton-
Anthracite coal.	ville.
DUNCAN, PETER S.....Ore Hill.	Sandstone.
Iron ore.	INTERNATIONAL CEMENT CO.. Elizabeth.
DURHAM IRON WORKSRiegelsville.	Cement rock, ground rock, and cement.
Red hematite and magnetite iron ores.	IRWIN, HENRY..... Bethlehem.
ECLIPSE LUBRICATING OIL Co., Franklin.	Paint, clays, crude, floated and finished
Oils and by-products and oil sands.	products.
EMMENS NICKEL Co.....Youngswood.	HOOPES, H. A.....Harrisburg.
Nickel ores and products.	Copper ores.
EMPIRE MARBLE Co..	JAMISON COAL & COKE Co.....Pittsburg.
Green marble from near Easton.	Section of bituminous coal vein; coke.
ERWIN, HENRY.....Bethlehem..	JOHNSON, R. H.....Wayne.
Hematite iron ore.	Trap Rock.
FISHER & SON.....Perkiomenville.	JOHNSON, SAMUEL J.....Morton.
Belgian blocks.	Granite.
FREDERICK MONROE & Co...Farrandsville.	JONES, DAVIDPhila.
Fire clay and products.	Clays, brick and graphite.
FRICK, H. C. COKE Co.....Scottsdale.	KEYS, GEORGE W.....Conshohocken.
Section bituminous coal seam and coke.	Clays and finished products.
FRIEDENVILLE ZINC Co.....Friedenville.	KITTANNING FIRE CLAY & BRICK Co.,
Zinc ores.	Pittsburg.
GALLOWAY, WILLIAM.....Phila.	Brick used in stone and terre cotta
Pottery products from Pennsylvania clay.	Bronze.
GAP NICKEL MINES & FURNACES.	KNAUER, DAVID.....St. Peters.
Nickel.	Granite.
GARDENER, JAMES, JR.....Pittsburg	KNOX, J. P. & E. A.....Allegheny City
Clays.	Sandstone.
GATES, JOSEPH P., & M. F.....Phila.	LEHIGH & WILKES-BARRE COAL Co., Wilkes-
Coal.	Barre.
GLENN, WILLIAM.....Baltimore.	Anthracite coal.
Chromium wood pit ore, chromite.	LEHIGH COAL & NAVIGATION Co., Lansford.
GORMAN, CLAY.....Cogan House.	Anthracite coal.
Brown limonite.	LEHIGH VALLEY COAL Co., Wilkes-Barre.
GRAHAM, KAOLIN Co.....Avondale.	Anthracite coal.
Clays and products.	LEHIGH METALLIC PAINT Co....Alburtis.
GRIGGS, DANIELMontoursville.	Paint clays.
Sandstone.	LEHIGH PORTLAND CEMENT Co., Allentown.
GRING, D.....Germantown.	Cement; cement rocks, concrete. Gold.
White sandstone.	LEIBY, ISAAC U.....Virginville.
GUFFEY, F. M.Pittsburg.	Limestone.
Drill cores.	LIGHTNER, NATHANIELGettysburg.
	Granite.

PENNSYLVANIA AT THE WORLD'S FAIR.

LOGAN IRON & STEEL CO.....Lewiston.	OSCEOLA COAL & COKE CO...Osceola Mills
Fossil ore, carbon and roasted carbon ores.	Bituminous coal.
LUZERNE OCHRE MFG. CO.....Moosehead.	PEACH BOTTOM SLATE PRODUCERS, ASSN.,
Paint clays.	Delta.
MARTIN'S CREEK PORTLAND CEMENT CO.,	Slate.
Martin's Creek.	PENNSYLVANIA CEMENT CO., New York, N. Y.
Cement rocks and finished cement.	Cement rock, and finished products.
MAYER POTTERY CO., LTD.....Beaver Falls.	PENNSYLVANIA COAL CO.....Scranton.
Clays and processes of the manufacture of	Anthracite coal.
semi-vitreous china.	Gold.
MAYER, DR. T. H.	PENNSYLVANIA COAL & COKE CO.....Phila.
Gneiss Rock.	Coal and coke.
McCLARREN, J.....Cogan Station.	PENNSYLVANIA GLASS SAND CO...Pittsburg.
Fossil iron ore.	Sand and products.
McCONNELL, E. M.....New Castle.	SILVER.
Carbonated iron ore.	PENNA. MARBLE & GRANITE CO., Westgrove.
McCOY & LINN.....Milesburg.	Marble and granite.
Brown hematite and brown hematite	PENNA. PAINT & OCHRE CO.,...Allentown.
pipe ore.	Paint clays.
McILVAIN & BROTHERBellemonte.	PENNSYLVANIA PLUMBAGO CO., Phoenixville.
Limestone.	Graphite.
McILVAIN, GEORGE D.....Bellemonte.	PENNSYLVANIA RAILROAD CO...Pittsburg.
Limestone.	Sandstone.
McMANNUS & REILLY.....Phila.	PENNA. STATE COLLEGE.....State College.
Sandstone.	Collective Clay Exhibit.
McWILLIAMS, GEORGE.....Canonsburg.	Grand.
Freestone.	PHILA. & READING COAL & IRON CO., Potts-
MELICK, E. E.....Retort.	ville.
Fire clay, crude, calcined and in bricks.	Anthracite coal.
MENGES, MRS. D. D.....Allentown.	PHOENIX IRON WORKS.....Phoenixville.
Iron ores.	Magnetite.
MEYER, ABRAHAM.....Cogan House.	PHOENIX CEMENT CO.....Nazareth.
Oolitic limestone, limonite and hematite.	Cement rock and finished cement
MILL HALL BRICK WORKS.....Lock Haven.	PLATT, C. C.....State Run.
Clays and brick.	Sandstone.
MILROY CEMENT COMPANIESMilroy.	PLANK, DR. D. HEBERMorgantown.
Cement rock ground, clinker and cement.	Manganese ores and copper ores.
MOLL, B. H.....Alburtis.	POTTSTOWN IRON CO.....Pottstown.
Paint clays.	Magnetite, hematite and manganese ores.
MONTELLO BRICK WORKS.....Reading.	POTTS, WILLIAM.....Weybrook.
Clays and brick.	Magnetite.
MONTOUR IRON & STEEL CO.,...Danville.	PURITAN COAL MFG. CO.....Phila.
Ores and associated minerals from Mon-	Bituminous coal.
tour County.	QUEEN'S RUN FIRE BRICK CO., Lock Haven.
MORRIS, E. S.....Quarry Glen.	Clays and brick.
Blue stone.	READING ANTHRACITE COMPRESS'D FUEL CO.
MOYER, J. S. & Co.....Bethlehem.	Blocks of anthracite coal and pitch.
Slate pavilion and other exhibits.	ROCHESTER & PITTSBURG COAL & IRON CO.
NATIONAL CEMENT CO.....Pittsburg.	Punxsutawney
Sandstone.	Bituminous coal.
NAZARETH CEMENT CO.....Nazareth.	ROCK HILL IRON & COAL CO.,
Cement rock and finished cement.	Rockhill Furnace.
NEW YORK & SCRANTON COAL CO., Scranton.	Hematite, fossil ore.
Anthracite coal.	RUTHERFORD & BARCLAY.....Phila.
NICE, EUGENE E.....Phila.	Paint clays.
Paint clays.	SCHOENFIELD, DR. JOHN.....Reading.
NICKEL MINES AND FURNACES, Gap Station.	Magnetite and iron ore, chalcopryrite.
Nickel, copper, chalcocite and chrysocolla.	SCHWEYER & LEISS.....King of Prussia.
HART, SOLOMON O.....Cogan House.	Marbles.
Brown limonite.	SENGER, FRANK.....Erie.
	Sandstone.
	SHAFFER, GEORGE.....Cogan Station.
	Red hematite.

CATALOGUE AND AWARDS.

SMITH, THE A. F. Co.....New Brighton. Clay and brick.	WEST, GEORGE.....Picture Rocks. Laurel Run Stone.
SMITH, A. U.....Beaver Springs. Bird's eye ore, sand vein ore and fossil ore.	WESTMORELAND COAL & COKE Co....Phila. Gas coal.
SMITH BROTHERS BRICK Co.....Pittsburg. Clays and bricks.	WESTMORELAND FIRE BRICK Co., Pittsburg. Clays and brick.
SMITH, JAMES B.....Reedsville Limestone and black marble.	WHARTON, JOSEPH.....Phila. Nickel from Gap Mine, Lancaster.
SNYDER BROTHERS.....Curwensville. Gray sandstone.	WHITEHALL PORTLAND CEMENT Co...Phila. Cement rock, clinker and finished product.
SOISSON, JOSEPH, FIRE BRICK Co., Connells- ville. Clays and brick.	WILLIAMS, C. K. & Co.....Easton. Exhibit of paints from raw material to finished products. Silver.
SPAHR, H. R.....Dompit. Limestone.	WILSON BROS. & Co.....Elwood City. Sandstone.
SQUIRES R. S.....Nicholson. Blue stone.	WOODLAND FIRE BRICK Co....Woodland. Clays and brick.
STAR ENCAUSTIC TILE Co., LTD...Pittsburg. Encaustic tile, raw to finished product. Silver.	GROUP 117.
STAR CLAY Co.....Mertztown. Paper clay.	EUREKA FIRE BRICK WORKS. Mt. Braddock. Model of coke oven.
STARK, H. F.....Greenburg. Sandstone.	LEHIGH VALLEY COAL Co. Relief map of anthracite coal fields.
STUEMPFLE, DAVID H.....Williamsport. Brown stone.	PENNSYLVANIA COAL & COKE Co.....Phila. Photograph of coke ovens.
SUSQUEHANNA COAL Co....Wilkes-Barre. Anthracite coal.	PENNSYLVANIA STATE OF Photographs, transparencies. Gold.
SWATARA BROWNSTONE Co.....Lebanon. Sandstone.	PENNSYLVANIA STATE OF. Relief Geological maps. Gold.
TATE, M. C.....Allentown. Paint clays, crude, floated and finished product.	GROUP 118.
TAYLOR, DAVID H.....Freeport. Sandstone.	LEHIGH ZINC & IRON Co.....Bethlehem. Metallurgy of zinc oxides and spiegel.
TEMPLE IRON Co.....Scranton. Anthracite coal.	GROUP 119.
TIFFANY, H. D.....Nicholson. Blue stone.	ANTHRACITE COAL COMPANIES. Statistical cubes, showing original amount of anthracite coal in fields, amount still in mines.
UNIONTOWN FIRE STONE Co....Uniontown. Firestone.	PENNSYLVANIA STATE OF Statistical shaft, showing values of mineral products in 1903; graphical charts, showing comparative statistics.
WALKER, R. J. C.....Williamsport. Sandstone and slate pencil.	
WELCH, GLONINGER & Co.....Pittsburg. Clays and brick.	

DEPARTMENT OF FISHERIES.

GROUP 121.

Products of Hunting.

SHIRAS, GEORGE, 3D.....Pittsburg. Wild game pictures. Grand.	
DEPARTMENT OF FISHERIES....Harrisburg. Mounted specimens, birds, mammals, reptiles, which prey on fish Gold.	
TRYON, E. K., & Co.....Phila. Angling appliances. Gold.	

GROUP 122.

Fishing Equipment and Products.

APPLE, MILTON S.....Phila. Brown trout.	
ACADEMY OF NATURAL SCIENCES....Phila. Gar fish, from Delaware River.	
BAIRD, H. L.....Cambridge Springs. Mascallonge, fish heads and black bass.	

PENNSYLVANIA AT THE WORLD'S FAIR.

DEPARTMENT OF FISHERIES...Harrisburg	MEEHAN, WILLIAM E.....Phila.
Thirty-five aquaria, live fish, Pennsylvania Fisheries.	Brown and California trout.
Grand.	Loan, water color drawing, brown trout.
DEPARTMENT OF FISHERIES...Harrisburg.	MELLINGER, MISS MARGARET J.....Phila.
Mounted Specimens, large fish belonging to Pennsylvania.	Water color drawing, Pickerel.
DEPARTMENT OF FISHERIES....Harrisburg.	PENNSYLVANIA FISH PROTECTION....Phila.
Collection of photographs, illustrating trout culture; four water colors, Pennsylvania fishes.	Collection of water color drawings, Pennsylvania fishes.
DEPARTMENT OF FISHERIES...Harrisburg.	TAYLOR, FRANK.....Phila.
Fifty photographic transparencies of Rivers and Creeks in Pennsylvania.	Three water color drawings, Rivers and Lakes of Pennsylvania.
Illegal and confiscated nets.	
ERNST, BERNARD.....Phila.	
Pickerel and eel.	

GROUP 124.

Fish Culture.

DEPARTMENT OF FISHERIES...Harrisburg.
Fish-way and hatchery.

DEPARTMENT OF AGRICULTURE.

GROUP 79.

Agricultural Implements and Farm Machinery.

ALLEN, S. L. & CO.....Phila.	
Agricultural Implements.	Silver.
BUCH'S A. SONS.....Elizabethtown.	
Steel troughs, corn shellers, lawn swings, land rollers.	Silver.
FARQUHAR, A. B. CO., LTD.York.	
Implements for seeding and harvesting.	Gold.
FRICK, COMPANY.....Waynesboro.	
Steam engines, threshing machinery.	Gold.
GEISER MFG. CO.....Waynesburg.	
Farm machinery.	Grand.
HALLOCK, D. Y. & SONS.....York.	
Cultivators, potato diggers, seed sowers and markers.	Silver.
HENCH & DRUMGOLD CO., THEYork.	
Agricultural implements.	Gold.
SPROUT, WALDRON & CO.....Muncy.	
Attrition mills and feed grinders.	Gold.

GROUP 81.

Tobacco.

PENNSYLVANIA, CIGAR MANUFACTURERS OF	
ABBOT CIGAR CO., THE, Abbottstown.	
ABLE, B. F., Hellam..	Gold.
BEAR BROS., York.	
BECK & BRO., York.	
BLESSING, J. A., Hellam.	
BLESSING & LEHMAN, Hellam.	
BOWMAN, GEO. W. & Co., Hanover.	Silver.
BROSSMAN, JOHN T., Reading.	
BUDDING, J. B., York.	Gold.
BUDDY, G. A., Littlestown.	Silver.
CLIME, C. M. & Bro., Terre Hill.	
COLLINS, V. A., McSherrystown.	

CUBAN STAR CIGAR FACTORY, Dallastown.	
DALLAS CIGAR CO., Dallastown.	
DEMMING, J. L. & BRO., East Greenville.	Bronze.
DOUGHERTY, E. R. & BRO., Dallastown.	
DRUCK, EPHRAM, Hellam.	
FREY, A. C., Red Lion.	
GLADFELTER, M. L., Thomasville.	
GROVE, WILLIAM, Felton.	
GROVE, PETER H., York.	
HANNAN BROS., Pittsburg.	Silver.
HARTZELL, A. R. & Co., Addison.	
HEINDLE, E. S. & Co., Dallastown.	
HOLTZINGER, & SEITZ, Red Lion.	Silver.
JACOBY, R. E., Rothsville.	
KALLER, E. M., Reading.	
KALTRIDER, D. FRANK, Red Lion.	Bronze.
KELLER, E. E., Reading.	
KEYSTONE CIGAR CO., Pittsburg.	
KOCHER, S. R. & SON, Wrightsville.	
KOEHLER, GEORGE A. & Co., York.	Gold.
KOEHLER, SNYDER CO., York.	Gold.
KROUT, F. R., Jacobus.	
LINGLE & EARNEST, Reading.	
MCGUIGAN, GEORGE W., Red Lion.	
MATTLING, C. E., & Co., McSherrystown.	
M. A. S. CIGAR WORKS, Quakertown.	
MAYER, W. I. & Co., Pittsburg.	Silver.
MEADS, F. M., Windsor.	
MILAYSOCK, J. B., Lancaster.	
MILLER, F. M., New Oxford.	
MUMMA, JOHN G., Lititz.	
NEIMAN, EDWARD, Thomasville.	Silver.
NEWSWANGER, B. F., Lancaster.	Bronze.
PARR, GEORGE W., Littlestown.	Bronze.
PFOFF, L. G., Hanover.	
PORTO RICO CIGAR CO., Red Lion.	Silver.
RAAB, W. H. & SON, Dallastown.	Bronze.
REIGEL, HOWARD W., Reading.	
ROEDEL, W. K. & Co., Phila.	

CATALOGUE AND AWARDS.

RUPPEN, C., Lancaster.
 SECHRIST, J. F., Holtz.
 SCHAEFFER, L. L., Felton.
 SCHLAEGER, FRED. Columbia. Bronze.
 SCHNEIDER, H. W., Littlestown. Bronze.
 SCHNEIDER, W. H. & Co., Windsor.
 SCHROLL, W. S., Manchester.
 SENTZ, B. S., Felton. Silver.
 SHAW, P. G., Dallastown. Bronze.
 SHEARER, S. & Co., Windsor.
 SHERTS, J. E. & Co., Lancaster. Bronze.
 SHIVELY, MILLER & Co., Pottstown. Silver.
 SINGLEY, C. G., Manheim. Bronze.
 SLATER, JOHN W. & Co., Lancaster. Gold.
 SMITH, L. J., Red Lion.
 SMITH, S. & SONS, Pittsburg. Bronze.
 SPANGLER, A. H., Codorus. Bronze.
 STEIN, J. W., Holtz.
 STEIN, HERMAN, Lancaster.
 STEPPACHER, M., Reading. Silver.
 STEWART, W. W., Newmanstown.
 STONER, E. B., Hellam.
 STUM, I. E. & Co., Red Lion.
 STOORELE, E. B., Windsor. Silver.
 WATTS, SAMUEL S., Terre Hill.
 WESTERN CIGAR Co., Pittsburg. Bronze.
 YETTER, C. M., Reading. Silver.
 YOST, U. A., Loganville.
 ZUDRELL, JOHN, Ephrata.
 WINGET MANUFACTURING Co., York.
 Cigar machines and cigars. Gold.

GROUP 82.

Appliances and Methods Used in Agricultural Industries.

PRAIRIE STATE INCUBATOR Co., Homer City.
 Incubator and brooders. Gold.
 REID, A. H., CREAMERY & DAIRY SUPPLY Co.,
 Phila.
 Pasteurizing System. Gold.
 Butter Moulds, Cabinet. Bronze.

GROUP 83.

Agricultural Statistics.

PENNSYLVANIA STATE OF.
 Agricultural charts. Silver.

GROUP 84.

Vegetable Food Products. Agricultural Seeds.

PENNSYLVANIA STATE OF
 Collective Exhibit of Agricultural Products. Gold.
 STEWART, F. L.....Murryville.
 Corn and Commercial products. Gold.
 BURPEE, W. ATLEE & Co..... Phila.
 Egg-plant Pepper. Silver.

GROUP 85.

Animal Food Products.

SMITH, KLINE & FRENCH Co..... Phila.
 Albumenized food. Gold.

GROUP 86.

Equipment and Methods Employed in the Preparation of Foods.

CARBONDALE MACHINE Co., THE, Carbondale.
 Refrigerating machinery. Gold.
 MILLS, THOS. & BRO..... Phila.
 Candy makers' tools. Gold.
 STEVENSON Co.....Chester.
 Refrigerator doors. Gold.
 WALTON, P. M.....Phila.
 Machinery for macaroni and other pastes. Gold.
 WENZELL, S. S. MACHINE Co.....Phila.
 Bottle-washing machines. Gold.
 SPROUT, WALDRON & Co.....Muncy.
 Roller mills. Gold.

GROUP 89.

Preserved Meat, Fish, Vegetables and Fruit.
 BANANA COFFEE & FOOD Co..... Phila.
 Evaporated vegetables.
 HEINZ, H. J. Co.....Pittsburg.
 Vegetables preserved by various processes.

GROUP 90.

Sugar and Confectionery, Condiments and Relishes.

BANANA COFFEE & FOOD Co.....Phila.
 Banana coffee.
 HEINZ, H. J. Co.....Pittsburg.
 Pickles.
 MOORE, P. K.....Trent.
 Maple sugar.
 PENROD, WILLIAM.....Arrow
 Maple sugar.
 STEWART, F. L.....Marysville.
 Sugar.

GROUP 91.

Waters.

DUQUESNE DISTRIBUTING Co., Harmersville.
 Carbonated mineral water. Gold.
 HIRE, C. E.....Malvern.
 Rootbeer, lemonade. Gold.

GROUP 93.

Syrups and Liqueurs—Distilled Spirits, Commercial Alcohol.

LARGE DISTILLING Co.....Pittsburg.
 Rye whiskies. Grand.
 OVERHOLT, A.....Pittsburg.
 Collective exhibit of bottled-in-bond goods.

PENNSYLVANIA AT THE WORLD'S FAIR.

GROUP 94.

Fermented Beverages.

JOHNSTON, DR. JAMES..... Bradford.
Koumiss. Gold.

PENNSYLVANIA STATE EXHIBIT.

GROUP 78.

Farm Equipment.

SWAYNE, MISS ANNA BELLE, Kennett Square.
Photographs of farm houses.

GROUP 81.

Tobacco.

ALEXANDER, H. M., Marietta.
BRICKER, JOHN R., Lititz. Gold.
CAMERON, J. D., Mt. Joy.
GROFF, A. S. & SON, Petersburg.
GREIDER, M. L., Lancaster. Silver.
HEITZLER, FRANK N., Mt. Joy.
HERR, D. JEFFERSON, Rifton.
HERR, HARRY B., Lime Valley.
HIBSHMAN, GEORGE, Ephrata. Silver.
HOOVER, E. S., Petersburg.
KAUFFMAN, B. F., Mt. Joy.
KEIFFER, S. H. W., Bausman.
KRIDER, GEORGE, Willow St.
LANCASTER COUNTY TOB. GROWERS' ASSN. Gold.
LANCASTER LEAF TOB. BOARD OF TRADE Grand.
LANCASTER LEAF TOB. CASE CO. Bronze.
LUTZ, H. B., Mt. Joy.
MUSSER, H. M., Marietta.
NEWCOMER, NOWMAN, Mt. Joy.
NEY, HARVEY, Maytown.
SIPLING, E. W., Florin.
SIPLING, A. N., Florin.
TAYLOR, JOHN, Bonville;

GROUP 81.

Cigars.

SNYDER, CHARLES, York County.
SLATER, JOHN, Lancaster.
YORKANA CIGAR CO., Yorkana.
DEITZ, A. W., Yorkana.
GABLE & GILBERT, Hellam.
FAUTH, HARRISON, Hellam.
BLESSING & LEHMAN, Hellam.
KAUFFMAN, W. C., Hellam.
MUNDIS, EMANUEL, Hellam.
HORN, J. W., York.
PEOPLES MFG. CO.,..... Lancaster.
Cigar rolling machines. Silver.

GROUP 83.

Agricultural Statistics.

FARM JOURNAL..... Phila.
MARKET REVIEW..... Pittsburg.
NATIONAL STOCKMAN & FARMER, THE, Pittsburg.
NOBLE, PAUL O..... State College.
Charts.
POULTRY ITEM, THE..... Fricks.
PRACTICAL FARMER, THE..... Phila.
SBORIGI, G. V..... State College.
Maps.
SUCCESS WITH FLOWERS..... West Grove.
Publication.
SURFACE, PROF. H. A..... State College.
Economic Zoology.

GROUP 84.

Vegetable Food Products—Agricultural Seeds.

ALEXANDER, CHRISTOPHER..... Millheim.
Corn.
ANDERSON, JOHN H..... New Park.
Corn, wheat and oats.
ANDERSON, JOHN W..... Stewartstown.
Corn, clover seed. Silver.
BENNINGER, M. L..... East Sandy.
Wheat, oats, buckwheat and corn.
BREAM, DILL..... Bendersville.
Wheat, corn. Bronze.
BRENNEMAN, D. W.... Stewartstown.
Red eye kidney beans. Silver.
BRUBAKER, A. L..... Hogestown.
Corn, wheat.
BUBBETT, B. A..... Carrollton.
Corn.
BULL, MONROE..... Hughesville.
Wheat.
BUTLER, A. N..... Howard.
Oats.
CAMPBELL, J. T..... Hartstown.
Corn, oats and wheat.. Bronze.
CONFER, LEONARD..... Howard.
Pop-corn.
CONFER, ROBERT. Howard.
Corn.
CORWES, C. D..... Smethport.
Buckwheat.
CROOKS, JOHN..... Murdockville.
Corn.
CUNNINGHAM, W. F..... Carrollton.
Oats.
DALY, W. C..... Smethport.
Pop-corn.
DAVISON, PROF. ALVIN, Lafayette College, Easton.
Grasses. Grand.
DECKER, SAMUEL..... Zion.
Oats.

CATALOGUE AND AWARDS.

DERR, W. H.....Opps.	JONES, FRANK B.....West Springfield.
Wheat, rye, oats and buckwheat, timothy seed.	Oats.
DEITZ, PHILLIP.....Howard.	KAHLER, B. F.....Hughesville.
Corn.	Wheat.
DETWILER, LEVIAllensville.	KAUFFMAN, MRS. L. M.....Kauffmans.
Corn.	Corn.
DICKSON, D. S.....Gibsonia.	KERN, D. N.....Allentown.
Wheat, buckwheat, corn.	Wheat.
DIEHL, JOHN A.....Bridgeport.	KAUFFMAN, D. N.....Allentown.
Corn and oats.	Wheat.
FANSOLD, DAVID.....Sunbury.	KAUFFMAN, E. F.....York.
Wheat.	Rye, wheat, grain.
FLEMING, JOSEPH T.....Belleville.	KESSINGER, W. F.....Carrollton.
Oats and corn.	Oats.
FRORER, HENRY.....King of Prussia.	KRESGE, SEBASTIAN.....Gilbert.
Wheat.	Wheat and corn.
GEIGER, G. Z.....Geiger's mills.	KRUNAMAKER, H; J.Nicktown.
Corn.	Wheat and Oats.
GILBERT, JESSE.....Delta.	LEDT, J. H.....Marion.
Wheat.	Alfalfa.
GLESSICK, JOHN H.....Felton.	Bronze.
Speltz, grain.	LONG, JAMES.....King of Prussia.
GOLDEN, CHARLESMilton.	Wheat and corn.
Wheat, oats and corn.	LUCAS, WILLIAM P.....Howard.
GOODWIN, J. M.....Diamond.	Corn.
Rye and buckwheat.	Bronze.
HAMPTON, JOHN.....Abrams.	LUTZ, S. B.....Nescopeck.
Pop-corn.	Wheat, buckwheat.
HANCOX, NEWTON.....Titusville.	Bronze.
Oats.	MC CREERY, SAMUEL.....Neshannock Fall.
HARTMAN, WILLIAM H.....Mt. Wolfe.	Wheat, oats, rye and corn.
Corn.	Bronze.
HAVEN, D. L.....Smethport.	McGOWAN, JAMES.....Geiger's Mills.
Oats and corn.	Corn.
HEGS, C. B.....Marion.	McGOWAN, HOWARD G...Geiger's Mills.
Wheat.	Corn.
HEINERICK, JOHN.....Germania.	McNARY, J. R.....Burgettstown.
Corn.	Wheat and corn.
HIEBNER, WILLIAM K.....West Point.	MCNEELY, JESSERutan.
Corn.	Corn, wheat and oats.
HOLMAN, A. T.....Nekoda.	Bronze.
Millet, oats and timothy seed.	MARTIN, E. G.....Spring Forge.
HOUP, DANIEL E.....Norristown.	Wheat, timothy seed.
Corn.	Silver.
HOY, HALLOWAY.....Hublersburg.	MILLER, JOHN.....Frankstown.
Corn.	Rye and oats.
HOY, MRS. M. B.....King of Prussia.	Bronze.
Corn.	MINER, ASHER.....Wilkes-Barre.
HOOVER, PETER.....Starview.	Cereals.
Corn.	MITCHELL, B. C.....Brandmore.
HUBER, DAVID D.....Lancaster	Corn, oats and wheat.
Corn.	MOTHERSBAUGH, L.....Boalsburg.
INSCHO, W. W.....Canoe Camp.	Corn.
Buckwheat.	MOYER, ELLIS.....Challenge.
Bronze.	Corn and buckwheat.
IRWIN BROS.....Fallowfield Town.	MUMMELL, F. P.....Volant, Lancaster.
Wheat.	Wheat, oats, and corn.
JOHNSON, C. D.....Hublersberg.	NESBIT, HAROLDMilton.
Wheat.	Wheat, oats and corn.
	Bronze.
	PEACHY, S. D.....Menno.
	Oats.
	Bronze.
	PENN. STATE COLLEGE.....State College.
	Wheat, oats and rye.
	Bronze.
	PENNYPACKER, SAMUEL W., Schwenksville.
	Corn.
	PLANK, S. E.....Menno.
	Wheat.

PENNSYLVANIA AT THE WORLD'S FAIR.

PORTER, PROF. THOMAS C., Lafayette College,
Easton.

Grasses. Grand.

POUST, MRS. DELANSON.....Hughesville.

Pop-corn

ROSE, H. H.....Wattsburg.

Wheat, oats and corn.

REIST, ELI, G.....Mt. Joy.

Beans. Silver.

SEXTON, JASON.....North Wales.

Corn.

SCHLOSSER, SAMUEL.....Newberrytown

Oats. Bronze.

SCHMIDT, JOHN.....St. Mary's.

Wheat.

SCHOLL, W. L.....West Newtown.

Corn and Wheat.

SHELMERDINE, W. H.....Montgomery Co.

Corn.

SNYDER, JOHNMonongahela.

Wheat.

STATE OF PENNSYLVANIA.....Harrisburg.

Corn on stalk. Bronze.

STEPHENS, ISAAH E.....Olmstead.

Wheat, buckwheat, corn and millet.

Bronze.

STRAWHACKER, CHARLES....King of Prussia.

Sweet and pop-corn. Bronze.

SUPPLEE, L. R.....King of Prussia.

Barley.

TYSON, E. M.....King of Prussia

Wheat and corn. Bronze.

WAGNER, C. A.....Ottawa.

Wheat.

WHISTLER, E. B.....York Haven.

Timothy seed. Silver.

WHITFIELD, JOHNWashington.

Wheat.

WIEDNER, A. JArndtsville.

Clover seed. Silver.

WILDER, W. J.....Connellsville.

Corn.

WILLIAMS, JOHN STitusville.

Wheat. Bronze.

WILSON, JOHN H.....Muddy Creek Forks

Field corn shelled. Bronze.

WOLF, WESLEY, J.Geiger's Mills.

Corn.

YEARICK, CHARLES E.....Walker.

Oats. Bronze.

ZERR, J. LUTHER.....Geiger's Mills.

Corn.

REIST, ELI G.....Mt. Joy.

Beans.

LEDY, J. H.....Marion.

Alfalfa.

SCHWARZ, F. R.....Analomink.

Vetches.

Potatoes.

AUCHEY, DAVID, Spring Grove. Bronze.

BRUBAKER, A. S., Mechanicsburg. Bronze.

HOOVER, E. S., Lancaster. Bronze.

FOIGHT, JOHN, Export. Bronze.

MENGES, CHARLES, Spring Forge.

PENNYPACKER, SAMUEL W., Schwenksville.

CHRIST, JACOB, Spring Grove. Bronze.

GROUT, N. G., Fairfield. Bronze.

HERSHEY, P. H., York. Bronze.

HILL, H. L., Fairfield. Bronze.

HYSER, WILLIAM, Jacks Mt. Bronze.

KELLER, J. A., Lancaster. Bronze.

KRUMENACKER, H. C., Nicktown. Bronze.

MENGES, PETER, York. Bronze.

PYLE, J. W., Kennett Square. Bronze.

SHENK, J. HERR, Lancaster. Bronze.

SPINKEL, E., Mountain Dale. Bronze.

GROUP 85.

Animal Food Products—Dairy Appliances.

JENSEN, N.....Rummerfield.

Creamery butter. Bronze.

PAYLOR, T. E.....Troy.

Butter. Bronze.

GROUP 87.

Farinaceous Foods and their Derivatives.

MINER-HILLARD MILLING CO., Wilkes-Barre.

Prepared cereals. Gold.

GROUP 95.

Wool Exhibitors.

ALLISON, F. W., Mercer. Gold.

ANDERSON, A. A., West Middlesex.

BERRY, J. M., Wylandsville. Gold.

BERRY, S. W.....Cannonsburg.

Fine merino. Silver.

BERRY, WM. & SONS, Washington. Gold.

BORROW, JOSEPH, Slippery Rock. Grand.

CHAMBERS, J. P. & SON....Wylandsville.

Spanish Merino. Silver.

CLEAVES, S. M., Burgettstown. Gold.

EGGLESON, A. S., Jackson Centre. Bronze.

FINLEY BROS., Claysville. Gold.

GAMBLE, C. J.....Transfer.

Cotswold, unwashed. Silver.

HENDERSON, J. B., Burgettstown.

KERR, JOHN W., Stoneboro. Gold.

LANTZ, & Co., Moore. Gold.

LEONARD, W. C.....Crothers.

Merino. Silver.

MALONE, B. D., Burgettstown. Gold.

MCCOY, W. C. & SON.....Mercer.

Leicester. Silver.

MCDONNELL, W. C., Florence. Gold.

MCDOWELL, S. V. & SONS, Fredonia. Gold.

CATALOGUE AND AWARDS.

MCWREATH BROS.....	West Alexander.
Merino.	Silver.
SCOTT, LEER R., Burgettstown.	Gold.
SHOOF, J. R., Smithfield.	Gold.
STERRETT, U. S.....	Jackson Centre.
Delaine and Cotswold.	Silver.
STEWART, H. R., Hookstown.	Gold.
TAIT, J. B., Mercer.	Gold.
TAIT, F. S. & SON, Mercer.	Bronze.
VAN KIRK, J. W.....	Crothers.
Merino.	Silver.

GROUP 96.

Useful Insects and Their Products.

DUNPWOLF, EARNEST.....	York.
Honey.	
STRITTMATTER, F. J.....	Bradley Junction.
Honey.	

Miscellaneous.

SURFACE, H. A.....	Harrisburg.
Thirty-six cases birds and mammals.	Gold.
JACOBS, J. WARREN.....	Waynesburg.
Birds' eggs of Pennsylvania.	Gold.
STEWART, F. L.....	Marysville.
Paper, pulp.	

DEPARTMENT OF HORTICULTURE.

GROUP 105.

Applications and Methods.

GALLOWAY, WILLIAM.....	Phila.
Garden Statuary, vases and fountains.	Grand.
ALLEN, S. L. & Co.....	Phila.
Planet Junior horticultural implements.	Gold.
SIMPSON, WILLIAM.....	Eddystone.
Motor lawn roller and mower.	Silver.

GROUP 107.

Pomology.

STATE OF PENNSYLVANIA.	
Apples and nuts.	Silver.
WILMER ATKINSON Co.....	Phila.
Paragon chestnuts.	Silver.
LEHMAN, HENRY.....	Wrightville.
Paragon chestnuts.	Silver.
REIST, ELI G.....	Lancaster.
Paragon chestnuts.	Silver.
SOBER, COLEMAN K.....	Lewisburg.
Paragon chestnuts.	Silver.
EHREHART, G. S.....	Franklin.
Chestnuts.	Bronze.
THOMAS, JOS. & SONS.....	Montgomery.
Walnuts.	Bronze.

GROUP 108.

Shrubs, Plants and Flowers.

CONARD & JONES Co.....	West Grove.
Exhibit of cannas.	Grand.
DREER, HENRY A.....	Phila.
Exhibit of aquatics	Grand.
LEWIS, MISS GRACE ANNA.....	Media.
Paintings of leaves, flowers and fruits of ornamental trees.	Gold.
BURPEE, W. ATLEE & Co.....	Phila.
Begonias, "Vulcan" and "Duchess of Edinburg."	Gold.
Burbank roses.	Gold.

CONARD & JONES Co.....	West Grove.
Roses and shrubbery.	Gold.
Altheas, "Jean de Arc."	Gold.
DREER, HENRY A.....	Phila.
Geraniums, Tritomas and Bedding plants.	Gold.

MEEHAN, THOMAS....	Germantown, Phila.
Shrubbery.	Gold.

MOON CO., THE WM. H.....	Morrisville.
Evergreens.	Gold.

PALM FLOWER Co.....	Phila.
Palm flowers.	Silver.

BROWN, PETER.....	Lancaster.
Pansies.	Silver.

BURPEE, W. ATLEE & Co.....	Phila.
Lemoine Giant Hybrid Heliotropes.	Silver.

Dahlias.	Silver.
DINGEE & CONARD.....	West Grove.

Exhibit of roses.	Silver.
DREER, HENRY A.....	Phila.

Pennisetum macrophyllum atro-sanguineum.	Silver.
Caladium Esculentum.	Silver.

Petunias and phlox.	Silver.
Ornamental grasses.	Silver.

Zinnia "Jacqueminot."	Silver.
Collection of salvias.	Silver.

EICHHOLZ, HENRY.....	Waynesboro.
Hardy phlox.	Silver.

CARLISLE NURSERY Co.....	Carlisle.
New carnation, "Crisis."	Bronze.

GROUP 110.

Seeds and Plants.

BURPEE, W. ATLEE & Co.....	Phila.
Lawn grass seed.	Gold.

DREER, HENRY A.....	Phila.
Lawn grass seed.	Silver.

MITCHELL, HENRY F. Co.....	Phila.
Lawn grass seed.	Silver.

PENNSYLVANIA AT THE WORLD'S FAIR.

DEPARTMENT OF FORESTRY.

GROUP 112.

*Appliances and Processes.*¹

FRICK Co.....	Waynesboro.
Portable saw mill.	Gold.
FARQUHAR, A. B. Co., LTD.....	York.
Saw mill.	Gold.
HENCH & DROMGOLD.....	York.
Saw mills	Silver.

GROUP 113

Products of Forest.

DOLGE-POSEY Co.....	York.
Piano sounding boards.	Gold.
LUMBERMEN'S EXCHANGE.....	Phila.
Panel of forty-two kinds of native woods.	Gold.

DEPARTMENT OF TRANSPORTATION.

GROUP 72.

Carriages and Wheelwright's Work. Automobiles and Cycles.

CARRIAGE MONTHLY	Phila
Publication.	
CYCLE & AUTO. TRADE JOURNAL	Phila.
Publication.	
DURYEA POWER COMPANY	Reading.
Automobiles.	Bronze.
FULTON & WALKER Co.....	Phila.
Ambulances and wagons.	Silver.
PITTSBURG TUBULAR STEEL Co....	Pittsburg.
Vehicle accessories.	Bronze.
SHELBY STEEL TUBE Co.....	Pittsburg.
Seamless tubes and boiler tubes.	Gold.
VARNISH.....	Phila.
Publication.	
VEHICLE DEALER	Phila.
Publication.	

GROUP 73.

Saddlery and Harness.

POLLITZ, KAUFMAN & Co.	Phila.
Lap dusters and chains.	Bronze.

GROUP 74.

Railways, Yards, Stations, Freight House, Terminal Facilities.

ADAMS, S. J. & Co.....	Pittsburg
Brake Shoes.	
AJAX METAL COMPANY.....	Phila.
Journal bearings.	Silver.
AMERICAN BALANCE VALVE Co. Jersey Shore.	
Balanced main valves, bolts.	Silver.
AMERICAN BAPTIST PUB. SOCIETY....	Phila.
Chapel car.	Silver.
AMERICAN LOCOMOTIVE SANDER Co....	Phila.
Locomotive sanders, bell rings.	Gold.
ANTI-FRICTION BEARING Co.....	Pittsburg.
Centre plates and side bearings.	Bronze.
BALDWIN LOCOMOTIVE WORKS	Phila.
Locomotives.	Grand.

J. G. BRILL & Co.....	Phila.
Electric cars and trucks.	Gold.
DAMASCUS BRONZE Co.....	Allegheny.
Journal bearings.	Silver.
DUFF MANUFACTURING Co.....	Allegheny
Jacks.	Gold.
ELDRIDGE WINDOW GLASS Co....	Eldredge.
Window glass for cars.	
FRANKLIN RAILWAY SUPPLY Co....	Franklin.
Car heating systems, stoves and hot water	
	Bronze.
FLANNERY BOLT Co.....	Pittsburg.
Flexible stay bolts.	Silver.
GELENA SIGNAL OIL Co.....	Franklin.
Signal, coach and car oil.	Grand.
HALE & KILBURN MFG. Co.....	Phila.
Car seats and seating.	Gold.
HEINZ, H. J. Co.....	Pittsburg.
Pickle tank car.	
HOMESTEAD VALVE MFG. Co....	Pittsburg.
Blow-off valves.	Silver.
LATROBE STEEL & COUPLER Co.....	Phila.
Couplers.	
MACONWAY & TORLEY Co.....	Pittsburg.
Couplers; brake device.	
NATIONAL CAR WHEEL Co.....	Pittsburg.
Cast iron wheels.	
PENN. CAR WHEEL Co.....	Allegheny.
Cast iron wheels.	
PENNSYLVANIA RAILROAD Co.....	Phila.
Locomotive testing plant.	Grand.
PITTSBURG BRAKE SHOE Co,	Pittsburg.
Brake shoes.	Bronze.
PRESSED STEEL CAR Co.,	Pittsburg.
Steel cars.	Grand.
PROTECTUS CO., THE,	Phila.
Paint.	
RAILWAY WORLD,.....	Philadelphia.
Publication.	
SHOEN STEEL WHEEL COMPANY, ..	Pittsburg
Steel wheels.	Gold.
STANDARD STEEL WORKS,....	Philadelphia.
Steel tired car wheels, forgings, cast-	
ings.	Gold.

CATALOGUE AND AWARDS.

STANDARD STEEL CAR COMPANY, . . .Pittsburg.	COUPLER CO.,Pittsburg.
Car trucks. Silver.	Air and steam couplers. Grand.
U. S. METALLIC PACKING CO.,Phila.	WHARTON, WILLIAM J., JR. & CO.,Phila.
Bell ringer and packings. Gold.	Switches and frogs. Gold.
UNION SWITCH AND SIGNAL CO., . . .Swissvale.	
Interlocking and block signaling apparatus, switches, frogs and crossings.	GROUP 75.
WESTINGHOUSE AIR BRAKE CO., Wilmerding.	<i>Material and Equipment Used in the Mercantile Marine.</i>
Air brakes and friction draft gear. Grand	INTERNATIONAL MER. MARINE CO.Phila
WESTINGHOUSE AUTOMATIC AIR AND STEAM	Models of steamships. Grand.

DEPARTMENT OF LIBERAL ARTS.

GROUP 15.

Typography—Printing Processes.

CARVER, C. R., Co.Phila.	
Press for steel die stamping and embossing. Gold.	
GRAPHIC ARTS CO.Phila.	
Machine for etching metal plates. Gold.	
KEYSTONE BLUE PAPER CO.Phila.	
Blue printing apparatus. Working exhibit. Gold.	
LANSTON MONOTYPE MACHINE CO.Phila.	
Type casting and composing machinery. Gold.	
LEVY, LOUIS EDWARD.Phila.	
Machine for the automatic powdering of plates, for process of etching. Gold.	
LEVY, MAX.Phila.	
Engraving screens for the half-tone process. Gold.	
PITTSBURG BLUE PRINT CO.Pittsburg.	
Blue printing apparatus. Working exhibit. Silver.	
PITTSBURG WRITING MACHINE CO.Pittsburg	
Typewriters. Silver.	

GROUP 16.

Photography.

GOLDENSKY, ELIAS.Phila.	
Photographs. Gold.	
PETZOLD, ADOLPH.Phila.	
Photographs. Silver.	
KELLMER, J. W.Hazleton.	
Photographs. Bronze.	
SOUTH, WILLIAM C.Downingtwn.	
Color photographs.	

GROUP 17.

Books and Publications.

LIPPINCOTT, J. B. Co.Phila.	
Books and publications. Gold.	
SCHLIPF, WILLIAM, JR.Phila.	
Miniature books. Bronze.	

GROUP 19.

Instruments of Precision.

BRASHEAR, J. A. CO., LTD., Allegheny City.	
Astronomical, physical and optical instruments. Grand.	
KEYSTONE METER CO.Royerstord.	
Meter-testing apparatus.	
SOLEY, GEORGE B.Phila.	
First steam coining press used by the United States Mint, in operation.	
UNITED GAS IMPROVEMENT CO., THE. Phila.	
Photometer. Gold.	

GROUP 20.

Medicine and Surgery.

AMERICAN STERILIZER CO.Erie.	
Sterilizers; filters and stills. Gold.	
BARKER, JAMES.Phila	
Massage machines. Silver.	

GROUP 21.

Musical Instruments.

VICTOR TALKING MACHINE CO.Phila.	
Talking machines and records. Grand.	

GROUP 23.

Chemical and Pharmaceutical Arts.

PENNA. SALT MFG. CO.Pittsburg.	
Chemical Products. Gold.	
UNITED GAS IMPROVEMENT CO., THE. . .Phila.	
Laboratory apparatus.	
WARNER, WILLIAM R. & CO.Phila.	
Fluid Extracts, pharmaceutical preparations. Grand.	
MULFORD, H. K., & CO.Phila.	
Pharmaceutical preparations. Grand.	

GROUP 25.

Civil and Military Engineering.

STANDARD UNDERG'D CABLE CO., Pittsburg	
Underground cables.	

PENNSYLVANIA AT THE WORLD'S FAIR.

LUPTON, DAVID, SONS, CO.....Phila.	CUMMINGS, ROBERT A.....Pittsburg.
Cement filled window and door frames.	Photographs and drawings of reinforced concrete.
VULCANITE PAVING CO.....Phila.	DRESSER, S. R.....Bradford
Cement metal work.	Special joints for gas main.
AMERICAN CEMENT & TILE CO...Wampum	DUFF MFG. Co., THE.....Pittsburg.
Roofing tiles.	Pipe forcing jack.
FALKENAN-SINCLAIR MACHINERY Co., Phila.	HAUPT, LEWIS M.....Phila.
Hand driven compressing machine.	Models showing methods of creating deep navigable channels by scour.
TINIUS OLESEN & Co.....Phila.	HELME & McLLHENNY.....Phila.
Cement testing machine.	Governor for gas mains.
TROEMNER, HENRY.....Phila.	HUNTER & DICKSON Co.....Phila.
Scales and balances.	Gas main.
McCARTHY, H. T.....Phila.	McCLINTIC-MARSHALL CONSTRUCTION Co.,
Concrete posts.	Pittsburg.
CONTRACTORS' PLANT Co.....Phila.	Photographs of steel bridges, buildings.
Gravity concrete mixer.	RICHARDS, JOSEPH T.....Phila.
ART STONE Co.....Chester.	Photographs of Susquehanna River bridge, Rockville.
Artificial stone work.	SHELTON, F. H.....Phila.

GROUP 26.

Models, Plans and Designs for Public Works.

ASS'N. PORTLAND CEMENT MAN'FRS. .Phila.	SUBURBAN GAS Co. OF PHILA...Chester.
Testing laboratory.	Concrete purifier box; high pressure gas service rig.
PENNSYLVANIA RAILROAD.....Phila.	UNITED GAS IMPROVEMENT Co., THE.Phila.
Model of New York Terminal.	Models of water gas apparatus.
PHOENIX BRIDGE Co.....Phoenixville.	WELSBACH STREET LIGHTING Co....Phila.
Models, photographs and plans.	Street.
CATTEL, CHARLES F.....West Chester.	WHITE, T. S.....Beaver Falls.
Oxide for gas purifying; historic gas main; gas burner.	Photographs and blue prints of engineering structures.

DEPARTMENT OF MACHINERY.

GROUP 62.

Steam Engines.

AMERICAN BALANCE VALVE Co.Jersey Shore.	HOLMES METALLIC PACKING Co. Wilkes-Barre
Valves.	Metallic packing.
AMERICAN STOKER Co.....Erie.	HUYETTE, P. B.....Phila.
Stokers.	Fittings for boilers.
BASHLIN Co., THE.....Warren.	NICHOLSON, W. H. & Co.....Wilkes-Barre.
Valves and fittings for boilers.	Steam separator.
BAUM SEPARATOR & MACHINE Co. Manheim.	PITTSBURG GAGE & SUPPLY Co. Pittsburg.
Steam separators, oil separators.	Exhaust head.
BRADLEY MFG. Co.....Pittsburg.	PURE WATER ENG. & CON. Co., Johnstown.
Vertical steam engines.	Methods of purification of water.
BRADLEY, C. H. JR. & Co.....Pittsburg.	SELLERS, WILLIAM Co. INC.....Phila.
Collaborators with Bradley Mfg. Co.	Appliances for boiler heating.
GEISER MFG. Co.....Waynesboro.	SKINNER ENGINE Co.....Erie.
Traction engines.	Steam engines.
HARRISON SAFETY BOILER WORKS, Phila.	WESTINGHOUSE MACHINE Co....Pittsburg
Feed water heaters; steam and oil separators.	Steam engines, steam turbine.
HARRISBURG FOUNDRY & MAGHINE WORKS.	
Harrisburg.	
Horizontal tandem-compound engine.	

GROUP 63.

Various Motors.

OTTO GAS ENGINE WORKS.....Phila.
Gas and gasoline engines.
WESTINGHOUSE MACHINE Co....Pittsburg.
Gas engines.

CATALOGUE AND AWARDS.

WOOD, R. D. & Co.....Phila.
 Producer, apparatus for generating gas.
 Grand.

GROUP 64.

General Machinery.

AMERICAN PULLEY Co., THE.....Phila.
 Steel split pulleys, sheaves. Silver.
 BASHLIN Co., THE.....Warren
 Water pipe accessories.
 DOWNIE PUMP Co.....Downieville.
 Pumps. Silver.
 EQUITABLE METER Co.....Pittsburg.
 Regulators for gas pressures; meters.
 FUEL GAS MFG. Co.....Pittsburg.
 Iron meter for gas.
 HOFER, F. W., TELESCOPIC LADDER Co. Phila.
 Fire apparatus.
 HOFFMAN-CORR MFG. Co.....Phila.
 Cotton transmission ropes. Silver.
 JEANSVILLE IRON WORKS Co., Hazleton.
 Pumping machinery.
 KEYSTONE METER Co.....Royersford.
 Gas meters and parts; meter-testing apparatus.
 METALLIC FLEXIBLE TUBING Co.....Phila.
 Flexible tubing. Silver.
 METRIC METAL WORKS.....Erie.
 Gas meters. Silver.
 MILES-BEMENT POND Co., CRANE WKS. Phila.
 Traveling crane.
 NUTTALL R. D. Co.,.....Pittsburg.
 Gears, pinions, trolleys, for electric motors.

PHILIPS PRESSED STEEL PULLEY WKS., Phila.
 Pulleys. Silver.
 PITTSBURG METER Co.....East Pittsburg.
 Water and gas meters. Gold.
 SELLERS, WILLIAM Co., INC.....Phila.
 Apparatus for the transmission of power, shafting, hangers, pulleys.
 STOW FLEXIBLE SHAFT Co.....Phila.
 Flexible Shafting.
 WOOD, R. D. & Co.....Phila.
 Hydraulic valves and pipes. Silver.

GROUP 65.

Machine Tools.

BARRETT'S BORING MACHINE Co., Meadville.
 Boring machine. Bronze.
 BEMENT-MILES WORKS.....Phila.
 Heavy machine tools.
 BILGRIM, HUGO.....Phila.
 Machine for cutting bevel gears. Gold.
 ERIE FOUNDRY Co.....Erie.
 Steam hammers and shears. Bronze.
 LANDIS MACHINE Co.....Waynesboro.
 Bolt cutter. Bronze.
 GEISER MFG. Co.....Waynesboro.
 Saw-mill machinery. Bronze.
 LANDIS TOOL Co.....Waynesboro.
 Grinding machines. Gold.
 NEWTON MACHINE TOOL Co.....Phila.
 Cold saw and slotter. Bronze.
 SELLERS, WILLIAM, Co., INC.....Phila.
 Planer and machines to sharpen. Grand.

DEPARTMENT OF ELECTRICITY.

GROUP 67.

Machines for Generating and Using Electricity.

BURNHAM, WILLIAMS & Co.....Phila.
 Electric locomotives for surface and mine haulage, and electric motor trucks.
 Working Exhibit.
 DRESSER, S. R.....Bradford.
 Insulating couplings, sleeves, tees, crosses, ells, to prevent electrolysis. Silver.
 ELECTRIC STORAGE BATTERY Co.....Phila.
 Boosters and switchboards for controlling and regulating storage batteries. Silver.
 EUREKA TEMPERED COPPER WIRE WKS.
 North East
 Copper and brass products.* Silver.
 KEYSTONE ELECTRIC Co.....Erie.
 Direct current generators and motors.
 Working Exhibit.
 WALKER ELECTRIC Co.....Phila.
 Switchboard. Bronze.

WESTINGHOUSE ELECTRIC & MFG. Co.,
 Pittsburg.
 Generators, rotary converters, motors, transformers, switchboards and accessories. Working Exhibit.
 Special Grand Prize

GROUP 68.

Electro-Chemistry

ELECTRIC STORAGE BATTERY Co...Phila.
 Storage batteries. Gold.
 STANDARD UNDERGROUND CABLE Co.
 Pittsburg.
 Rubber-covered wires and cables. Gold.

GROUP 69.

Electric Lighting.

ELECTRIC STORAGE BATTERY Co...Phila.
 Model central station battery installation.
 Working Exhibit. Gold.

PENNSYLVANIA AT THE WORLD'S FAIR.

GIBSON GAS FIXTURE WORKS.....Phila.
Electric fixtures. Bronze.
KEYSTONE BLUE PAPER CO.....Phila.
Application of electric light to blue printing apparatus. Working Exhibit.
NERNST LAMP CO.....Pittsburg.
Lamps and accessories. Working Exhibit. Gold.
PITTSBURG BLUE PRINT CO.....Pittsburg.
Application of electric light to blue printing apparatus. Working Exhibit. Bronze
STANDARD UNDERG'D CABLE Co. Pittsburg.
Weatherproof wires and lead-covered cables.
STILL, W. F. & Co.....Phila.
Incandescent lamp socket. Bronze
TOERRING, C. J. & Co.....Phila.
Arc lamps. Working Exhibit. Silver.
WESTINGHOUSE ELEC. & MFG. CO. Pittsburg.
Arc lamps, switches and circuit breaker. Working Exhibit. Gold & Silver.

GROUP 70.

Telegraphy and Telephony.

STANDARD UNDERG'D CABLE Co. Pittsburg.
Telegraph and telephone wires and cables. Gold.

GROUP 71

Various Applications of Electricity.

ELECTRIC STORAGE BATTERY CO.....Phila.
Storage batteries for signals, fire alarms, medical and laboratory purposes. Working Exhibit.
LEDDE & NORTHUP Co., THE,Phila.
Electrical measuring instruments. Grand
PITTSBURG STEEL CO.....Pittsburg.
Electrically welded wire fence intersections.
WESTINGHOUSE ELEC. & MFG. CO. Pittsburg.
Electrical measuring instruments. Working Exhibit. Gold.

DEPARTMENT OF MANUFACTURES.

GROUP 28.

Stationery.

AMERICAN METAL EDGE BOX CO.....Phila
Metal edge paper box machine. Silver.
SCOTT PAPER CO.....Phila.
Toilet paper and devices. Silver
WEBER, F. & Co.....Phila.
Artists' materials. Gold.

GROUP 29.

Cutlery.

FARNHAM, F. H. Pittsburg
Cutlery and automobile tools.
NATIONAL CUTLERY CO.....Phila.
Cutlery. Gold.
NATIONAL STEEL & AUTOMATIC Co...Phila.
Gauge shears. Bronze.

GROUP 30.

Enameled Ware.

HEEREN BROS. & Co.....Pittsburg.
Patent enameled badges. Silver.

GROUP 32.

Clock and Watch Making.

SMITH, GEORGE W. & Co.....Phila.
Hall clocks. Silver.

GROUP 33.

Productions in Marble, Bronze and Iron.

AMERICAN ART MARBLE CO.....Phila.
Marble and onyx productions. Gold.

LIPPINCOTT, CHARLES & Co.....Phila.
Soda fountain apparatus. Silver.

GROUP 35.

Articles for Camping and Traveling.

HOFFMAN-CORR MFG. CO.....Phila.
Hammocks. Gold.

GROUP 37.

Decoration and Fixed Furniture.

AMERICAN ART MARBLE CO.....Phila.
Marble and onyx decorations. Gold.
EXHIBITION SHOW CASE CO.....Erie.
Ribbon case.
RISCHKE-GOTTFRIED MFG. CO. ..Pittsburg.
Machine for dressing, finishing and polishing.
SMITH, GEORGE W., & Co., INC.....Phila.
Ornamental joiner work.
TEED, W. L. SONS & Co.....Sayre.
Banana tree and pickle cabinet. Bronze.

GROUP 38.

Office and Household Furniture.

AMERICAN SPECIALTY MFG. CO.....Phila.
Cheese cabinet. Bronze.
BUCH'S A. SONS.....Elizabethtown.
Lawn swing. Bronze.
QUAKER SHOPS, THE.....Phila.
Hand-made furniture. Gold.
SMITH, GEORGE W. & Co., INC.Phila.
Hall clock cases and furniture. Gold.
CONROY PRUGH CO.....Allegheny.
Mirrors. Silver.

CATALOGUE AND AWARDS.

GROUP 41.

Hardware.

ALUMINUM COOKING UTENSIL Co., Pittsburg.	
Aluminum cooking utensils.	Gold.
AMERICAN IRON & STEEL MFG. Co.... Lebanon.	
Bolts, nuts, rivets and kindred articles.	Gold.
AMERICAN PULLEY Co..... Phila.	
Pulleys.	Silver.
BROHARD Co., THE..... Phila.	
Door stops, expansion bolts.	Silver.
COLES MFG. Co..... Phila.	
Coffee mills.	Bronze.
DEVLIN, THOMAS MFG. Co..... Phila.	
Iron, brass and steel castings.	Gold.
ENTERPRISE MFG. Co..... Phila.	
Hardware specialties.	Gold.
FARNHAM, F. H..... Pittsburg.	
Automatic tools.	
GRIFFITHS, GEORGE Co..... Phila.	
Shovels, spades, scoops.	Gold.
LUPTON'S, DAVID SONS Co..... Phila.	
Metal window frames.	Silver.
MYERS, H. M. Co..... Beaver Falls.	
Shovels, spades and scoops.	Gold.
NATIONAL SPECIALTY MFG. Co..... Phila.	
Hardware specialties.	Silver.
OTT, CHARLES W..... Pittsburg.	
Clothes line device.	Bronze.
PHILA. MALLEABLE IRON WORKS.... Phila.	
Marine and awning hardware.	Silver.
ROWLAND'S T. SONS..... Cheltenham.	
Shovels, spades, scoops.	Silver.
WALKER PAT. PIVOTED BIN Co..... Phila.	
Bins.	Silver.
WINDOW SWINGING Co..... Phila.	
Swinging window.	Bronze.

GROUP 43.

Carpets, Tapestries and Fabrics.

PHILADELPHIA TAPESTRY MILLS..... Phila.	
Tapestries.	Gold.

GROUP 45.

Ceramics.

NATIONAL FIRE PROOFING Co.... Pittsburg	
Fire proofing.	Grand.

GROUP 46.

Plumbing and Sanitary Materials.

BASHLIN Co..... Warren.	
Faucets and basin cocks.	Silver.
DEVLIN, THOMAS, MFG. Co..... Phila.	
Pipe fittings.	
STANDARD SANITARY MFG. Co.... Pittsburg.	
Porcelain enameled iron sanitary ware.	

GROUP 47.

Glass and Crystal.

QUAKER CITY CUT GLASS Co..... Phila.	
Cut glass.	Grand.

GROUP 48.

Heating and Ventilation.

ALUMINUM COOKING UTENSIL Co., Pittsburg	
Cooking utensils.	
ENTERPRISE MFG. Co..... Phila.	
Kitchen utensils.	
NAT. LIGHTING & HEATING Co., Royersford.	
Stove.	
NATIONAL SPECIALTY MFG. Co..... Phila.	
Kitchen utensils.	
PHILA. HARDWARE & MALLEABLE IRON WKS.,	
Phila.	
Hot air registers, ventilators and radiators.	Silver.
RUUD MFG. Co..... Pittsburg.	
Gas water heaters.	Gold.
PULLMAN AUTOMATIC VENTILATOR Co., York	
Ventilator.	Silver.

GROUP 49.

Apparatus and Methods for Lighting.

BRILILITE LAMP Co..... Royersford	
Lamp.	
KEYSTONE METER Co..... Royersford.	
Acetylene gas meter.	

GROUP 51.

Equipment Used in the Manufacture of Textile Fabrics.

PHILADELPHIA COMMERCIAL MUSEUM, Phila.	
Bureau of Commerce.	Grand.
TEXTILE MACHINE WORKS.... Reading.	
Machines for dress trimming and hosiery trade.	Gold.

GROUP 52.

Equipment Used in Dyeing and Laundry Work.

PENDLETON, CHARLOTTE..... Phila.	
Process of dyeing.	

GROUP 54.

Threads and Fabrics of Cotton.

EDDYSTONE MFG. Co., THE.... Eddystone	
Dyed and printed cotton fabrics.	Gold.
ABERFOYLE MFG. Co..... Chester..	
Fancy cotton fabrics.	Grand.
HOFFMAN-CORR MFG. Co..... Phila.	
Cotton hammocks, ropes, thread.	Gold.
WILKES-BARRE LACE MFG. Co., Wilkes-Barre.	
Lace curtains.	

PENNSYLVANIA AT THE WORLD'S FAIR.

GROUP 56.

Fabrics of Animal Fibres.

CHASE, L. C., & Co.....	Phila.
Horse clothing, plushes.	Grand.
STETSON, JOHN B. Co.....	Phila.
Hatters' furs.	Grand.

GROUP 57.

Silk and Fabrics of Silk.

TIOGA SILK CO.....	Athens.
Silk.	
YORK SILK MFG. CO.....	York.
Black silk goods.	

GROUP 58.

Laces, Embroidery and Trimmings.

HOFFMAN-CORR MFG. CO.....	Phila.
Braids and twisted cords.	Gold.
WILKES-BARRE LACE MFG. CO., Wilkes-Barre	
Lace curtains.	Gold.
PALMA MFG. CO.....	Phila.
Tenneriffe lace constructors.	Silver.

GROUP 59.

Wearing Apparel.

GREENWALD BROTHERS.....	Phila.
Eiderdown garments.	Silver.

GROUP 60.

Leather, Boots and Shoes, Furs and Skins.

ENGLAND & BRYAN.....	Phila.
Leather.	Grand.
HOWARD, J. W. & A. P. & Co.....	Corry
Sole leather.	
LAIRD, SCHOBBER & Co.....	Phila.
Ladies' shoes.	Grand.
LEAS & McVITTY, INC.....	Phila.
Leather.	Grand.
MASON, JAMES S.....	Phila.
Shoe polishing pastes and fluid.	Gold.
MATHIEU, J. P. & Co.....	Phila.
Shoe leather.	Grand.
MATTHEWS, C. J. & Co.....	Phila.
Glazed and patent kid.	Gold.
WOLFF PROCESS LEATHER CO.....	Phila.
Enameled leather.	

GROUP 61.

Industries Connected With Clothing.

GREENWALD BROTHERS.....	Phila.
Ladies' undershirts, robes and sacques.	Silver.
KNICKERBOCKER BRACE CO.....	Easton.
Shoulder braces.	Bronze.
STETSON, JOHN B. Co.....	Phila.
Fur, felt and stiff hats.	Grand.
PALM FLOWER CO.....	Phila.
Artificial flowers.	Gold.

DEPARTMENT OF SOCIAL ECONOMY.

GROUP 129.

Study of Social Conditions.

AMERICAN ACADEMY OF POLITICAL & SOCIAL	
SCIENCE	Phila.
Publications.	Gold.
GILMAN, N. P.....	Meadville.
Publications on "Social Economics and	
Education."	Grand.
PHILA. COMMERCIAL MUSEUM.....	Phila.
Charts; reports and data on economic	
resources and organizations.	Grand.

GROUP 136.

Housing of the Working Classes.

OCTAVIA HILL ASSOCIATION.....	Phila.
For the better housing of the poor.	Gold.
APOLLO IRON & STEEL CO., Vangrft.	Gold.
WESTINGHOUSE AIR BRAKE CO., Wilmerding.	
STETSON, JOHN B. Co.,	Phila.
	Gold.

GROUP 138.

General Betterment Movement.

HEINZ, H. J. Co.....	Pittsburg.
Photographs; statistics; models.	Grand.
NATIONAL CONGRESS OF MOTHERS...	Phila.
Reports; statistics.	
FRANCISCAN SISTERS.....	Glen Riddle.
With School of Social Sciences of the	
Catholic University of America.	
APOLLO IRON & STEEL CO..	Vandergift.
Industrial betterment.	Gold.
PENNSYLVANIA RAILROAD.....	Phila.
Relief and pension department.	Gold.
WESTINGHOUSE ELECTRIC CO...	Pittsburg.
Industrial Betterment Institution.	Gold.
THE TEMPLE, Phila.	Diploma
ST. ANDREWS' REFORMED,.....	Reading.
	Diploma.
COVODE HOUSE,.....	Pittsburg.
	Bronze.

CATALOGUE AND AWARDS.

GROUP 139.

Charities and Corrections

PASSAVANT HOMES FOR EPILEPTICS.
Rochester.
PENNA. EPILEPTIC HOSPITAL.....Oakburn.
INSTITUTION FOR FEEBLE MINDED CHILDREN,
Elwyn.
WESTERN PENNSYLVANIA STATE INSTITUTION
FOR FEEBLE MINDED,Polk
BIDDLE, CADWALADER.....Phila
Pennsylvania Board of Charities and its
work.
FLICK, DR. L. F.....Phila.
Open-air treatment for consumptives.
HART, EDWIN K.....Phila.
Appendicitis, typhoid fever, and accident
reports of Pennsylvania Hospitals..
Pennsylvania Charity Monument.
HEINZ, H. J. Co.....Pittsburg.
Model of Day Industrial School; photo-
graphs; charts and statistics.
HOUSE OF REFUGE.....Glen Mills.
Photographs; charts and statistics. Gold.
INGRAHAM, DR. N. R.....Phila.
Appendicitis—its cause and cure.
LOWMAN, DR. W. B.....Johnstown.
Industrial hospitals and their mission.
MCLEOD, DR. GEORGE I.....Phila.
Pennsylvania Lunacy Committee and its
work.
PENNA. CHILDREN'S HOME SOCIETY, Pittsburg.
Charts; photographs and statistics.
PENNA. REFORM SCHOOL, Morganza. Silver.
PENNA. SOCIETY FOR THE PREVENTION OF
TUBERCULOSIS, Phila. Silver.
LUTHERAN ORPHANS' HOME, Topton. Silver

GROUP 140.

Public Health.

ALTOONA BOARD OF HEALTH...Altoona.
Sanitary charts; maps; photographs;
statistics.
MEDICO-CHIRURGICAL COLLEGE.....Phila.
Department of Hygiene.
MULFORD, H. K. Co.....Phila.
Prevention of infectious diseases. Grand.
PENNA. STATE BOARD OF HEALTH...Phila.
Sanitary Charts; maps; diagrams; photo-
graphs. Gold.
PENNA. SOCIETY FOR THE PREVENTION OF
TUBERCULOSIS.....Phila.
Sanitary Charts; maps; diagrams; photo-
graphs.
PIPP'S INSTITUTE.....Phila.
For the investigation, cure and prevention
of tuberculosis. Grand.
PITTSBURG BOARD OF HEALTH..Pittsburg.
Sanitary charts; maps; diagrams; photo-
graphs.

GROUP 139.

Charities and Corrections.

PENNA. STATE BOARD OF CHARITIES, Harrisb'g
Collective Exhibit. Grand.
Collaborators:
HOMES FOR THE POOR:
American Needlework Guild.
Anti-Cruelty Society, Philadelphia.
Bala Home for the Aged, Philadelphia.
Baptist Home, Philadelphia.
Baptist Orphanage, Philadelphia.
Barclay Home, West Chester.
Bethlehem Home, Bethlehem.
Bethlehem's Children's Home, Bethlehem.
Butler County, Home, Butler.
Burd Orphan Asylum, Philadelphia.
Chester County Home, Embreeville.
Church Home, Jonestown.
Clearfield City Hospital, Clearfield.
Easton Home for Women, Easton.
Elk County Hospital, Ridgeway.
Franklin Inebriate Reformatory.
Friends' Home, Philadelphia.
Girard College, Philadelphia.
Haddock Infants' Home, Philadelphia.
Children's Home, Harrisburg.
Children's Home, Hazleton.
Hebrew Orphan's Home, Philadelphia.
Home for Aged Couples, Philadelphia.
Home for Aged Men, Pittsburg.
Home for Aged Women, Pittsburg.
Home for Colored, Philadelphia.
Home for Infants, Philadelphia.
Home Missionary, Philadelphia.
Home for Blind Workingmen, Phila.
Home for Friendless, Pottsville.
Home for Friendless, Lancaster.
Home for Friendless, Reading.
Home for Friendless, Scranton.
Home for Friendless, Wilkes-Barre.
Home for Blind Workingwomen, Phila.
House of Industry, Philadelphia.
Indigent Widows, Philadelphia.
Jewish Foster Home, Philadelphia.
Home for Incurables, Philadelphia.
Lackawanna County Home, Hillside.
Langhorne Orphans' Home, Langhorne.
Loysville Children's Home, Loysville.
Lutheran Home, Mt. Airy, Philadelphia.
Lutheran Orphan's Home, Topton.
Mary J. Drexel Home, Philadelphia.
Masonic Children's Home, Philadelphia.
Masonic Home, Philadelphia.
M. E. Deaconesses' Home, Philadelphia.
Mechanics' Home, Philadelphia.
Methodist Home, Philadelphia.
Methodist Orphanage, Philadelphia.
Newsboys' Home, Pittsburg.
Northern Home, Philadelphia.

PENNSYLVANIA AT THE WORLD'S FAIR.

- Nugent Baptist Home, Philadelphia.
 Nurse Supply Society, Philadelphia.
 Nurse Visiting Society, Philadelphia.
 Odd Fellows' Children's Home, Meadville.
 Odd Fellows' Children's Home, Phila.
 Odd Fellows' Home, Philadelphia.
 Old Ladies' Home, Wilkes-Barre.
 Orphans' Home, Allegheny.
 Children's Aid, Philadelphia.
 City Farm, Pittsburg.
 Presbyterian Home, Philadelphia.
 Presbyterian Orphanage, Philadelphia.
 Roxborough Home, Philadelphia.
 St. Francis' Home, Philadelphia.
 St. John's Home for Children, Philadelphia.
 St. Joseph's House, Philadelphia.
 St. Patrick's Orphanage, Scranton.
 Salvation Army, Philadelphia.
 Soldiers' and Sailors' Home, Erie.
 Union Benevolent Home, Philadelphia.
 Veterans' Home, Philadelphia.
 Children's Home, Waynesburg.
 Wayfarers' Lodge, Philadelphia.
 Western Home, Philadelphia.
 Widener Memorial Home, Philadelphia.
 Children's Home, York.
- HOSPITALS, DISPENSARIES AND NURSING.**
- Adrian Hospital, Adrian.
 General Hospital, Allegheny.
 City Hospital, Allentown.
 Altoona Hospital, Altoona.
 Fever Hospital, Butler.
 Cambria Steel Company, Johnstown.
 Charity Hospital, Norristown.
 County Hospital, West Chester.
 Chester Hospital, Chester.
 Chestnut Hill Consumptive Hospital, Phila.
 Columbia Hospital, Columbia.
 Corry Hospital, Corry.
 Douglass Memorial Hospital, Philadelphia.
 Drexel Children's Hospital, Philadelphia.
 Easton Hospital, Easton.
 Episcopal Hospital, Philadelphia.
 Hahnemann Hospital, Philadelphia.
 Harrisburg Hospital, Harrisburg.
 Homeopathic Hospital for Children, Phila.
 Homeopathic Hospital, Pittsburg.
 Howard Hospital, Howard.
 German Hospital, Philadelphia.
 Germantown Hospital, Germantown.
 Good Shepherd Hospital, Rosemont.
 Jefferson Hospital, Philadelphia.
 Jewish Hospital, Philadelphia.
 Jewish Maternity Hospital, Philadelphia.
 Kensington Hospital, Philadelphia.
 Kittanning Hospital, Kittanning.
 City and County Hospital, Lancaster.
 Lebanon Hospital, Lebanon.
 Lying-in Charity Hospital, Philadelphia.
 McKeesport Hospital, McKeesport.
 Meadville City Hospital, Meadville.
 Medico-Chi Hospital, Philadelphia.
 Mercy Hospital, Pittsburg.
 Mercy Hospital, Wilkes-Barre.
 Methodist Episcopal Hospital, Phila.
 Moses Taylor Hospital, Scranton.
 Oil City Hospital, Oil City.
 Orthopedic Hospital, Philadelphia.
 Packer Hospital, Sayre.
 Passavant Hospital, Pittsburg.
 State Hospital, Philadelphia.
 State Hospital, Ashland.
 State Hospital, Blossburg.
 State Hospital, Connellsville.
 State Hospital, Hazleton.
 Sanatory Camp, Mt. Alto.
 State Hospital, Mercer.
 State Hospital, Phillipsburg.
 State Hospital, Scranton.
 Children's Hospital, Philadelphia.
 Eye and Ear Hospital, Pittsburg.
 Children's Hospital, Pittsburg.
 Pittston Hospital, Pittston.
 Philadelphia Hospital (sick poor), Phila.
 Municipal Hospital, Philadelphia.
 Philadelphia Dispensary, Philadelphia.
 Phipps Consumptive Hospital, Phila.
 Phoenixville Hospital, Phoenixville.
 Polyclinic Hospital, Philadelphia.
 Pottstown Hospital, Pottstown.
 Pottsville Hospital, Pottsville.
 Presbyterian Hospital, Allegheny, Pa.
 Presbyterian Hospital, Philadelphia.
 Presbyterian Memorial Hospital, Allegheny.
 Reading Hospital, Reading.
 Homeopathic Hospital, Reading.
 Rush Consumptive Hospital, Philadelphia.
 St. Christopher's Hospital, Philadelphia.
 St. John's General Hospital, Allegheny.
 St. Joseph's Hospital, Lancaster.
 St. Joseph's Hospital, Philadelphia.
 St. Luke's Hospital, Bethlehem.
 St. Luke's Hospital, Philadelphia.
 St. Mary's Hospital, Philadelphia.
 St. Timothy's Hospital, Philadelphia.
 Samaritan Hospital, Philadelphia.
 Consumptive Hospital, Scranton.
 Southern Dispensary, Philadelphia.
 City Hospital, Titusville.
 Uniontown Hospital, Uniontown.
 University Hospital, Philadelphia.
 Valley Hospital, New Castle.
 Valley Memorial Hospital, Johnstown.
 Emergency Hospital, Warren.
 Westmoreland Hospital, Greensburg.
 West Pennsylvania Hospital, Pittsburg.
 Women's Hospital, West Philadelphia.
 Consumptive Hospital, White Haven.
 Williamsport Hospital, Williamsport.

CATALOGUE AND AWARDS.

Wills Eye Hospital, Philadelphia.
 City Hospital, Wilkes-Barre.
 Underground Hospital, Wilkes-Barre.
 Women's Southern Homeopathic Hospital,
 Philadelphia.
 Women's Homeopathic Hospital, Phila.
 Woman's Hospital, Philadelphia.
 York Hospital, York.

HOSPITALS FOR THE INSANE:

Chester County Hospital, Embreeville.
 Friend's Asylum, Philadelphia.
 Lackawanna County Hospital, Hillside.
 Lancaster County Hospital, Lancaster.
 Luzerne County Retreat, Luzerne.
 State Hospital, Allentown.
 State Hospital, Danville.
 State Hospital, Harrisburg.
 State Hospital, Norristown.
 Philadelphia Hospital, Philadelphia.
 State Hospital, Warren.
 State Hospital, Wernersville.
 Pillsbury's City Farm Hospital, Pittsburg.
 West Pennsylvania Hospital, Dixmont.

FOR THE FEEBLE-MINDED AND EPILEPTIC:

Hospital and Colony Farm, Oakburn.
 Passavant Memorial Homes, Rochester.
 Training School at Elwyn, Elwyn.
 Training School, Polk.

PENAL INSTITUTIONS:

Berks County Jail, Reading.
 Eastern Penitentiary, Philadelphia.
 House of Correction, Philadelphia.
 House of Refuge, Glen Mills.
 Industrial Retormatory, Glenn Mills.
 Montgomery County Jail, Norristown.
 Western Penitentiary, Allegheny.

Miscellaneous.

ROTHROCK, DR. J. T.....Phila.
 Sanitary Camps for consumptives.
 SOLDIERS' ORPHANS' INDUSTRIAL SCHOOL,
 Scotland.
 Machinery; vise work; wood truning;
 bench work.
 WILLARD, DR. H. L.....Pittsburg.
 Typhoid fever; its cause and cure.

GROUP 141.

GUILD HALL, International correspondence
 Schools, of Scranton.
 INGRAM RICHARDSON MFG. Co., Beaver Falls
 Street signs and numbers.
 STANDARD SANITARY MFG. Co...Pittsburg.
 FAIRMOUNT PARK ART ASSO.....Phila.
 (Town Hall) Collective exhibit of photos
 and plaster casts.
 T SQUARE CLUB, (Town Hall).
 Collective exhibit of municipal architec-
 tural designs.
 KELSEY, ALBERT.....Phila.
 Design of Model Town Hall. Gold.

DEPARTMENT OF LIVE STOCK.

DIVISION A.—HORSES.

No Entries.

[DIVISION B.—CATTLE.

PAXTON, J. G.....Houston.
 Holstein-Friesian. One first prize; one
 fifth prize; Total \$95.
 MCFADDEN, G. H.....Bryn Mawr.
 Ayrshire. One fifth prize; four second,
 four third; three fourth; one fifth.
 Total \$735.
 PRICE, EDWARD TROTTER.... Broadaxe.
 Guernsey. Five first prizes; two second;
 five third; one fourth; Total \$780.
 Also grand prize.

DIVISION C.—SHEEP.

HENDERSON, J. B.....Burgettstown.
 Dorset. Five first prizes; four second;
 one third; four fourth; four fifth. Total
 \$363.

DIVISION D.—SWINE.

HILTON, J. H.....West Chester.
 Chester White. One fifth prize. \$25.

DIVISION E.—POULTRY.

ORR, T. E., Superintendent.....Beaver.
 Commemorative Medal and Diploma.
 ARNOLD, A. D.....Dillsburg.
 Buff Leghorn. One first prize; two sec-
 ond; three third; Columbian Wyandottes
 two first.
 BRAY, C. E.....Allentown.
 Columbian Wyandottes, one second.
 CLARK, J. A.....Pittston.
 Breeding pen. One second.
 HUNTER, W. C.....Meadville.
 Mottled Anconas. One first; one second;
 one third.
 HILLDORFER, MARIE.....Allegheny.
 Buff cochin. One first.

PENNSYLVANIA AT THE WORLD'S FAIR.

HILLDORFER, J. P.....Allegheny.	SCHEID, P. A.....Lancaster.
Black Minorcas. Two first; two second; one third.	Oriental Frills. One first; one second.
MOORE, W. H.....Westtown.	Parlor Tumblers. Nine first; two second.
Buff Cochins. One second.	SKILES, J. M.....Pittsburg.
TREICHLER, A. C.....Elizabethtown.	Dragoons. One first; one second. Show
Silver Sebright. One first; one second; one third.	Homers. Four second. African Owls.
WHITMAN, W. T.....Allentown.	Two first; two second. English Owls.
Plymouth Rocks. One first; one second.	Two first; two second.
WITMER, E. H. & SON.....Neffsville.	SNIDER, E. F.....Allentown.
Japanese. One second; one third; Partridge Cochins. Two first; one second; two third. White Polish. One second; one third. Africans. Two first; two second.	Working Homers. Two first.
WEIMER, E. A.....Lebanon.	WITTMAN, W. T.....Allentown.
Black Wyandottes. One second prize.	Working Homers. One first; one second.
Dark Brahmas. One first; one second.	
White Langhams. One first. Black Leghorns. Two first. Mottled Anconas. Two first; one second; one third. Andalusians. One first. Brown Red. One first. Cornish Indian. Two first; one second; two third. Buff Leghorns. Two first. Plymouth Rocks. Two first; one second; one third. Ducks. Nine first; eight second; one third. Geese. Six first; four second; four third. Guinea Fowls. Three second; one third.	
DIVISION E.—PIGEONS.	
CARPENTER, C. H.....Manayunk.	CHASE, E. B.....Phila.
Working Homers. One first; one second.	Pointers. One first.
DRAKE, A. W.....Latimore.	FARRELL, F. H.....Lansdowne.
Magpies. One first; three second.	Fox terriers. Four first.
DIMLING, J. H.....Pittsburg.	GRIFFITH, THOS. F.....Phila.
Runts. Three first; one second.	Rough Collies. One third.
MERVINE, C. K.....Phila.	HALLIDAY, MRS. W.....Phila.
African Owls. One first; one second.	Cocker spaniels. One first.
	MORRELL, E. de V.....Phila.
	Fox hounds. Two first.
	WILLIAMS, B. G.....Lansdowne.
	Fox terriers. One second; one third.
	HILLDORFER, J. F.....Allegheny.
	Rough collies. One second.
	KING, H. B.....Phila.
	Gordon setters. One first.
	LEWIS, MISS ANNA B.....Lansdowne.
	Beagles. One fourth. English setters. Two first.
	LEWIS, B. F.....Lansdowne.
	Pointers. One first.
	LEWIS, B. F., JR.....Lansdowne.
	Irish setters. One first. Greyhounds. One first.

DEPARTMENT OF PHYSICAL CULTURE.

STANDARD SANITARY MFG. CO., Pittsburg.	PHILADELPHIA NORMAL SCHOOL OF PHYSICAL
Gold.	TRAINING OF TEMPLE COLLEGEPhila.
UNIVERSITY OF PENNSYLVANIA.....Phila.	Bronze.
Orthopaedic Hospital.	Gold.



